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THE SCIENTIFIC SPIRIT IN MEDICINE.

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In accepting the invitation which you have extended to me to deliver the inaugural address I have been influenced by three considerations.

First of all, the compliment which such an invitation implies calls for the courtesy of acceptance. When one institution representing dignity and tradition of the best kind asks a member of another to occupy the rostrum for the inaugural occasion it is but fitting that he invited should respond in the spirit of the invitation.

Then there is the special nature of the occasion. Between all universities there should be a comity, a fellowship whose amenities should help to lighten the toil and weariness of the intellectual highroad. Between Toronto and McGill there has not been hitherto that freemasonry of spirit that I should like to see prevail. There has been aloofness where there should be comradeship. This does not mean that they should not be rivals. In all things of the mind there ought to be a noble rivalry, a struggle of emulation to excel, that no comradeship ought ever to extinguish or even make appear unnatural. A competition that aims at intellectual excellence should always exist between the two universities and it would be a sorry day for the higher life in this young nation if either went on its way careless of the ideals and intellectual ambitions of the other. The comradeship should make also for generous appraisement of each other's efforts. There may, perhaps, be grounds for criticism of each other's achievements and methods, but there is at the same time no greater influence for making that criticism effective than a generous appreciation of the good things each has done. To this end the representative men from the two universities should mingle freely with one another.

Address delivered at the opening of the 76th Session of the Medical Faculty of McGill University.

In the third place, there is the desire to express how deeply the members of the University of Toronto felt for the University of McGill in her misfortunes of April last. We have been afflicted enough in this way in the past to appreciate what such losses mean. To have the results of the labours of two generations destroyed in the few hours of a night is a trial for even the most stoic fortitude, and you had without measure the sympathy of my colleagues at Toronto. This is as it should be, for, as between man and man, so between the two universities in their trials:

> There are two things that stand like stone:
> Kindness in another's trouble, Courage in one's own.

To not a few for a time the double disaster brought anxiety. If it had seriously affected the position of McGill the result would have been felt in Toronto, not for this year only, but for generations. No university lives to itself alone, and if it is worthy of the name it ought to be a stimulus to every other. How difficult it is to effect progress of the most enlightened kind when one has only to consider one's own colleagues, and their reluctance to advance is only too patent to those who know the internal history of every university. The forces that make for things as they are would be invincible were it not that the call from within to march forward is reinforced by the challenge from without. In this way the progressive section in one university aids the progressive section in another, but the result is fully felt only if misfortune has not checked the course of either.

Happily, the disaster which has befallen McGill, though of a magnitude sufficient to discourage profoundly, has not daunted her or her Medical Faculty. In this you find an illustration of the old saying, that it is not buildings that constitute a university, but men. The Medical Faculty of McGill University is the eldest institution teaching medicine in this country, and because of its history of unselfish endeavour and sacrifice it has developed a spirit of tradition and association that will impel its members of to-day to hand down to their successors of the next generation the institution not only unimpaired, but also with its traditions enriched and with ideals that will stimulate the noblest endeavours. The outlook, therefore, for McGill is one in which the trials of the present are to be merely incidents, not dire strokes of Fate. I entertain the most earnest wishes for the prosperity of McGill, but a prosperity in which the most progressive ideas will be most potent factors. For ideas are to march in Canada in the next twenty years, and even to-day McGill and Toronto cannot afford to

stand still, since standing still involves a helpless and hopeless fall in the rear. In words similar to those of the Red Queen to Alice: "In this country you have to run as fast as you can in order to remain where you are."

It is in accord with progress that this university should determine to exact henceforth five years in the course of study leading to the degree in medicine, and I congratulate the Medical Faculty on the step taken. That four years are not sufficient to permit the student to meet all the demands of a modern curriculum is the conclusion of those who have given careful attention to the matter. A quarter of a century ago four years were considered to suffice amply for this purpose, but since then the medical sciences have made extraordinary advances into hitherto unexplored fields and, in consequence, the amount of knowledge which the student is expected to have when he graduates is far in excess of what was required of the student of twenty years ago. To lengthen the period of study to five years was, in my opinion, a wise act, and I believe that, though the Medical Faculty of McGill University may be called upon to make considerable sacrifices because of this change, it will bring not a loss, but a great gain in the end.

The result will, from the outset, be to the advantage of the student. The exaction of five years in medical study will enable him to acquire a fuller, ampler knowledge not only of medicine and surgery but as well of the sciences on which they are founded, and he will thus be better fitted to cope with the problems he will meet in his professional career than a training of four years only would enable him to do.

There is, however, one qualification which no length of training merely as such will give him, and he can only attain it by deliberately setting himself to acquire it. He may become an encyclopædia of medical and surgical lore, and he may be successful as things go in the exercise of his calling without that qualification, but if he is to achieve the highest success of which he is capable that qualification is absolutely indispensable to him. That qualification is the Scientific Spirit.

Because of its importance and because also its value to the student in training is not sufficiently understood, I have chosen that qualification as the central topic of my address to you to-day.

There are few things in which there is such a tendency to be inaccurate as in the use of words. The term Science is one of those loosely or wrongly employed. *Scientia,* the Latin word from which it originates, means knowledge in the ordinary and simple sense. To-day, in popular language, science is an oracular personality. Science tells us this, Science has done that, we hear again and again. This is all quite

wrong, for it tends to make a cult of a word and the word itself then becomes a fetish. Science is simply organized knowledge, nothing more or less, knowledge not of isolated facts, but of facts put into such relation to one another that all of them and the phenomena involved are explained. In order to relate the facts in a particular subject it is necessary to discover some principle which will run through all of them and unite them. The fall of an apple from the tree, the movement of a pendulum, the shooting meteor, the tides of the ocean, the course of the earth round the sun, the swing of the sun around some gigantic, far-distant mass, are isolated facts which may at once be related on the application of the principle of gravitation, which is, according to Helmholtz, the greatest logical advancement of the human mind. Here we have the organized knowledge of gravitation and we see how important a part the principle plays in organizing or relating the knowledge. Similarly, on other subjects we find the facts put into relation to one another by one or more guiding principles ascertained through the use of the reasoning powers of the mind. Consequently, the principles, or generalizations, which enable us to organize knowledge, are all important in Science. The facts must be certain, but without the principles that relate them they are facts simply and a knowledge of them does not constitute Science. Science then is the knowledge of facts organized through the application of principles or generalizations that relate them all.

You will recognize that when we use Science in this sense it has lost for some the power to bemuse, to enchant, to hypnotize, but this is not a disadvantage, for the more sharply do we define our ideas and our conceptions the more serviceable to us do they become.

Having now crystallized what we mean by Science, we may next discuss what is comprehended by the term Scientific Spirit. The man on the street would, perhaps, at once think that it is the mental make-up that concerns itself with matters, or facts, some of which may eventually be of practical application but ordinarily are of no interest to the average individual. In other words, it is a peculiar type of mind that is suposed to be involved. That it is not only the man of the street who thus regards the Scientific Spirit may be made quite evident when one examines the point of view of the lawyer, the clergyman, the merchant, the manufacturer, the man of leisure, and, astounding to note, the majority of the medical profession. To them all, the Scientific Spirit is a thing apart.

Now, it may be admitted that there are apparently many facts in our organized body of knowledge called Science which cannot be utilized

in industry or commerce, and mankind could get along without knowing or concerning itself with them. Take a case in illustration and one that thrusts itself on the attention of man month after month, and year after year, from birth to death. The seasons answer this point, for, while they mean so much in the joy of life and the appreciation of this beautiful world, they occur with an almost monotonous regularity. Their phenomena, further, are everywhere manifest, and one would think it difficult or impossible for any individual capable of reasoning to escape the desire to know how they are caused, yet it is doubtful if more than one out of every ten of those who are supposed to be educated can adequately explain their causation, and it is doubtful if more than one out of every hundred average individuals comprehend how they occur. Some of those who are questioned on the subject may, probably, answer that in winter the sun goes south and in summer returns north, and that explanation contents them; while others not only cannot explain, but even manifest no concern at their inability to do so, and have no desire to know. They have passed through childhood, youth and adolescence to full maturity, yet they have never found it was from the practical point of view of value to know, and they have never felt the inward impulse to know. The causation of the seasons to such is a scientific fact alone, and as it is of no direct service to them or to commerce or industry so far as they are aware, they are indifferent regarding it.

Quite in contrast with this apathy or indifference is the attitude of the individual endowed with the Scientific Spirit. He has within him the compelling desire to know the causes of things, a desire that is not one whit satisfied with a half explanation or one that superficially appears correct. To this end facts are necessary, but the desire to collect facts, simply in itself alone, is no evidence of the presence of the Scientific Spirit, any more than is the desire to collect postage stamps, curios, and beetles, or to make a record of four hundred appendicectomies or ovariotomies. With the Scientific Spirit causation is everything and facts are of importance only when they help to ascertain causation.

The scientific mind wants to know why and how things happen, the average mind does not, except when there is a pecuniary, industrial or commercial advantage involved in knowing. Convince the average man that there is a material advantage to be gained from knowing the how and why of some phenomenon and he will be eager to obtain all possible information about it. If, for example, it could be shown that sun spots dominated the American wheat crop, every speculator in wheat would have his telescope and bit of smoked glass and he might be so

keenly interested that he would eventually know more about the solar atmosphere than about the air he breathes. But even when he is stimulated to know by the hope of some practical advantage to be gained, he is not content to proceed as the man endowed with the Scientific Spirit does, but takes short cuts to conclusions and he too often satisfies himself with snap judgments.

We see then that it is the attitude of mind that constitutes the Scientific Spirit, an attitude of mind that desires not only information, but definite and accurate information. The Scientific Spirit approaches every problem in the questioning mood and, unless where human happiness or suffering is involved, is not greatly concerned as to whether the solution is or is not of practical utility. When it has marshalled the facts of a question it may propose an explanation as a theory which will comprehend the why and how of them all, and which will serve until more facts are obtained, and then if the theory does not stand the test of a rigorous examination it will be discarded for another that will.

To that extent the Scientific Spirit is of the theorist order. To a certain type of mind, a type all too common, it is a stigma to be labelled theorist. Theory to such is something to be shunned and, being practical, is the summum of wisdom. There is no doubt that to indulge in speculations and accept explanations that have no regard for ascertained facts, or that are based on no facts at all, is an offence to reason and every effort should be directed to putting a curb on a loose imagination. The extravagant theorist, however, at once declares himself when he divulges his views and so he provides for his own effacement. The practical man, on the other hand, is quite as much an obstacle to real progress as is the extravagant theorist, for he accepts, consciously or unconsciously, the popular explanations or theories, and these are in the majority of cases either inadequate or absolutely wrong. I recall in this connexion several cases in which physicians and surgeons of the self-styled practical order were required to account to the relatives of patients for unfortunate results that occurred under their care, and the explanations given were astonishingly crude. What physician, "practical" or otherwise, can escape the necessity of giving day after day explanations, largely of the nature of theory, to his patients? If he were to refuse, or to say that he does not know, he would soon lose their confidence and, consequently, if he is not in the position to give a rational explanation he is forced to accept the popular one or to formulate one of his own *ad hoc,* and both may be equally superficial and crude. All this justifies the remark which the eminent chemist, Professor Ostwald, once made to me: "The practical man is the worst of all theorists, for he has a bad theory."

The fact that theory is so much in disrepute is in part the result from the past, when facts were fewer and knowledge scantier than now, and, in consequence, the inquiring mind, rather than accept negation or be indifferent, had to resort to explanations, some of them fantastic elaborations, others shrewd guesses, of the phenomena within its ken. That these were intended only as makeshifts was only to have been expected and it is but natural that many of them should now be discarded. Those who are critics of the scientific method point exultingly to the list of these exploded theories and they are sometimes quite vociferous in denouncing what they are pleased to call Pseudo-Science. I recall with amusement once hearing a celebrated teacher of Greek dwell lovingly on the myths of Plato and immediately thereafter vigorously condemn the foolish theories of the men of science.

What the world would have been to-day without those theories one can but dimly fancy, but possibly we would still be in the Dark Ages. In reality, every theory that aroused opposition or dissent was a factor in stimulating mankind to think, and to think as clearly as it was at the time capable of doing. It has often happened that the individual with a passion to theorize has broken a popular idol and the intellectual life of mankind has gained thereby. Galileo theorized and the belief that the earth is the centre of the universe is extinct. Galvani, Volta and Faraday advanced their theories, and, as a result, we have the sciences of electricity and magnetism, through the aid of which we may some day arrive at a determination of the ultimate constitution of matter. Darwin's views as to the origin of species are not now accepted in toto by biologists, but is his fundamental position challeged to-day even by the man of the street? Can it be questioned that Darwin's theory, although rejected in part, has altered the intellectual outlook of mankind?

On the other hand, we have always with us the individual who is ever ready to extol men of science when they discover something that may be utilized by the inventor, the manufacturer or the engineer but who gives no heed to the long and often painful processes by which the result has been reached. Indeed, the result is too often thought due to a happy stroke of luck. It is this absence of correct information and clear conception as to what Science is, and how it is established, that is responsible in very large part for the loose thought and gullibility that are so prevalent. What to the public as a whole constitute the marvellous results of Science makes a large number of people ready to believe anything fantastical or extraordinary, and, in consequence, there is abroad a superstition of an exceedingly difficult character to

combat. I am not referring to such crude matters as spiritualism, astrology, palmistry and clairvoyance, but to the cult of mysticism, that modern hotbed of superstition, and to the obsession that leads many to revel in nebulous conceptions, or to intoxicate themselves with the maunderings and moonings of Christian Science, theosophy and occultism and all the semi-paranoiac creeds that are ever having each its hour.

It is not only the average individual that is affected in this way, but also some of those who consider themselves educated and enlightened. To me it is a matter of wonder why the number of those who are so affected is not greater. Clear-cut ideas and the ability to think clearly are not general characteristics even amongst the educated, and that is why education as a qualification in the exercise of the franchise has not proved successful as a corrective of the evils of democracy. The want of clear-cut ideas and the inability to think clearly would, perhaps, not matter so much if intellectual honesty were general, but even that is very largely wanting. Mr. Morley, the present Secretary of State for India, declared three years ago at a gathering of convocation of the University of Toronto, that, "he in all his life had been acquainted with only four men of whom he could say that their love of truth was unassailable and impregnable."

The great majority of mankind, even of its civilized portion, will always accept what is easy to believe, or what are the current views, not whatever is exact or true. The very aim of the Scientific Spirit serves to isolate it from the opinion and sympathy of the day. Any movement that will apparently result in unsettling the general convictions and beliefs of mankind on that account is sure to rouse hostility. When the Royal Society was founded nearly two and a half centuries ago to investigate experimentally natural phenomena, it was regarded by some as an institution designed to wreck the Christian Faith. It was considered to be a sin to investigate Nature. She was supposed to be a personality which was not to be profaned by inquiry. If the curious and inquisitive mind wished to know about her they could go to Aristotle or Galen, who were supposed to impart all about her that ought to be known. Authority was paramount and man ought to be content with its judgments. Even tradition was regarded as sacred, and, to-day, with a large portion of civilized mankind, it counts for more than established facts and carefully tested deductions.

The Scientific Spirit, therefore, cannot have that place and influence in moulding opinion that belongs to it. In some American universities, for example, the manifestation of such a desire counts against any one

who aspires to teach in certain secular departments. He is not regarded as safe, and he is accordingly ostracized. When we consider the difficulties that the course of truth encounters one is reminded of an incident related by St. Augustine. On one occasion when his teacher was explaining the course of Creation and how the Almighty had in six days created the heavens and the earth, one student asked if the Almighty had taken just six days to do all this, what was He doing before He created the Universe. He received the crushing reply: "Alta Gehennas scrutantibus parabat." "He was employed in preparing hell fires for those of an inquiring turn of mind."

Science then is merely the body of organized knowledge concerning the world about us and within, the Scientific Spirit is that attitude of mind which will not content itself with tradition, with authority, and which, further, will not refrain from employing the only method which will bring certainty to knowledge, the method which involves observation, test, trial and experiment. The Scientific Spirit does not confine itself to finding out facts for these themselves may be intellectually valueless, but it strives to bring them all into some relation with each other and all into proper places under that order. Science then is not facts, but the organization of our knowledge of them.

Having now made clear what is understood by the Scientific Spirit I shall next discuss its relation to medicine.

There is probably no line of human development in which the Scientific Spirit is to play in the near future a greater part than in medicine. As to the past all the advances in medicine have had their origin in that intellectual influence.

Medicine began nearly three thousand years ago as a series of observations on disease. It is the current idea that Hippocrates, who lived in the fifth century B.C., laid the foundation of rational medicine by studying the votive tablets and offerings dedicated to Asclepios in gratitude for the cures which he, as a god, effected in the sick who visited and worshipped in his temples. This is a wholly erroneous idea, as even a superficial study of the Coan Prenotions shows. These are a series of aphorisms attributed to Hippocrates, but undoubtedly of a much earlier origin, and probably represent the results of the observations of several generations of rational physicians in the island of Cos. These Coan Prenotions further show that in that remote time the types of disease were carefully studied and the facts collected and related. It was these facts which formed the basis of the physical diagnosis in which Hippocrates and his Coan predecessors were so adept. Hippocrates, indeed, extended and amplified the concepts which were thus

handed down to him, but his great service to medicine consisted in impressing on his generation the necessity for accurate observation above all things. He did not reject theory, for he was the originator of the doctrine of Humoral Pathology, but he attached great importance to the phenomena of disease, apparently recognizing that facts must be accumulated before generalizations could be formed. Unfortunately, his precepts on this point were largely ignored by his successors, for they spun theories when they should have observed and recorded.

It is, however, probable that had they fully exploited the methods which he taught the result in the end would have been the same. The absence of definite knowledge regarding the functions of the various organs of the body would have ultimately made the mass of observations sterile of result. The sciences of chemistry and biology had to wait two thousand years for their modest beginnings, and there could be no considerable advance until the microscope was invented, and so long as oxygen and its properties were unknown.

In those twenty centuries the Scientific Spirit was almost extinct in medicine, and authority and tradition reigned supreme. It was not that the love of learning was less than it is now, for, although the population of the non-Russian portion of Europe at the close of the Middle Ages did not exceed fifty millions there were more students in its universities than there are in those of Germany of to-day. The University of Vienna alone had at the end of the fifteenth century about 7,000 students hailing from every part of Christendom. But it was only tradition that was taught and authority and dogma were unlimited in their tyranny over the human intellect. A revolt now and then occurring was suppressed. How little place there was for the Scientific Spirit, even as late as the sixteenth century, may be gathered from Luther's remark that, "reason is the chief mistress of the devil."

This obscurantism began to give way in medicine, and in the seventeenth century Galen was rejected everywhere for Hippocrates. But it meant for the intellect in medicine the exchange of one servitude for another, for, although the great teacher of Cos may inspire those who read his works in the right spirit, the vast majority of those who resorted to him sought to find in him merely an authority in all things medical. And an authority he became, for edition after edition of his writings issued from the press and those of his Aphorisms alone numbered over 350.

But in that same century the light began to come from another source. It was the century of the foundation of the Royal Society. It was the century also of Harvey, Malphighi, Borelli, Grew, Glisson,

Willis, Vieussens, Wharton, Sylvius, de Graaf, Swammerdam, Leeuwenhoek, Bartholinus, Mayow, Redi, Boyle, Galileo and Newton, in whom the Scientific Spirit flourished as it never did before. These natural philosophers, as they were called, isolated and scattered over Europe, were not stimulated by the hope of fame or the reward of place to study nature, they were all driven by that internal force, intellectual curiosity, the Scientific Spirit, to seek to know and, considering the difficulties they had to meet, difficulties which came on the one hand from the fact that they were breaking absolutely new paths into the unknown, and on the other, from the hostility of their environment, one is led to regard their attitude of mind and their unwearied search for truth as never to be excelled. It was they who laid the foundations of astronomy, chemistry, physics, biology, anatomy, physiology and pathology.

It is a remarkable fact that in the next century there followed a halt after so brilliant a beginning, and though some progress in all these sciences was made, substantial advances began only about the middle of the nineteenth century. Then the Scientific Spirit developed as it did in the sixteenth century, and we are now at its flood tide which will never again ebb. In the last half century the development of the sciences, chemistry, biology, physiology and pathology was an extraordinary stimulus to the development of medicine. If we strike out of the record of the last two hundred years all the additions to medicine and surgery due to the development of the sciences named, comparatively little of value would remain.

In consequence of all this development of the sciences, physical diagnosis became more exact, the phenomena of disease were more accurately determined and clear ideas were attained as to the processes involved in disease. Because of all the aid furnished by the sciences it is possible for the practitioner of medicine of to-day to deal with disease in a way that no physician either in the days of Hippocrates or of a century ago could have imagined possible. It is, indeed, doubtful if even the most far-seeing physician of 1870 could have forecast the development which has taken place in the last thirty years.

All this progress has depended on the simple methods which the average physician with a moderate amount of laboratory training has been able to follow and even employ. The results of these methods he can understand and thus he is in a position to keep step with advancing knowledge. These simple methods are still serviceable in clearing up dark points, as witness the discovery by Schaudinn of the Spirochæta of syphilis, and the identification of Trypanosoma as the

cause of sleeping sickness. Here are two great achievements of the last five years which are of vast importance, not only to medicine, but also to humanity, for in the one case we may now be in a position to control a scourge that has afflicted the human race since the close of the Palæolithic Period, and in the other we are at the beginning of a struggle, defeat in which may render the Tropics uninhabitable to man, white, black or yellow.

These simple methods will always be used in the practice of medicine, but so far as extending the bounds of knowledge is concerned they have already been exploited for nearly all they are capable of yielding, and now is beginning the period of diminishing returns. Progress of a substantial kind will have to depend on the discovery of new methods, on the exploitation of other lines of work, as well as on the breaking of hitherto unprojected paths into the unknown.

What are those lines, in what direction does their trend appear to be now?

This is a question which I think is of transcendant importance to those interested in medical education, and it behoves us who are concerned to scan closely the distant prospect and take the bearings of our course.

It is almost trite to say that there has been in the last twenty years an extraordinary expansion in the sciences ancillary to medicine, but it is difficult to realize adequately how extensive that widening of knowledge has been and we can only approximate it by the adventitious aid of figures. In the last three years the number of original papers published in pathology, hygiene, physiology, pharmacology and bio-chemistry was about 17,000. In 1904-5-6 the number of bio-chemistry alone was over 9,000,—in 1906 it was nearly 4,000. The numbers of bio-chemical papers published in the eighties were only a few hundred annually. One gathers from this what energy is now being expended in the investigation of the chemistry of living matter, not alone of the normal, but of the pathological as well. The number of the papers published is an indication of the army of workers that is engaged. If we credit every worker with two publications annually we would infer that in bio-chemistry alone there must be approximately 2,000 researchers. Twenty-five years ago the number of investigators in all the departments of Science did not exceed three thousand.

In pathology the output has also been enormous, and especially on its chemical side. Formerly pathology concerned itself chiefly with the morphological side of disease. Now there lies before it all the chemical problems which are of a far weightier interest in that they concern the ultimate causation of disease.

The advance in bacteriology in the last few years has been more and more developed along the chemical side, for the aim of research in this department has been to determine the nature of bacterial products and how they are disposed of in the animal cell. Considering the number of species of pathogenic bacteria and the polyphasic activity of living matter, it is not unreasonable to assume that the chemistry of microorganisms causing disease will enlist the enthusiasm of armies of researchers.

All this shows that the development of the next two or three decades is to be along chemical lines, with methods transcending those now in use and with a basis of knowledge that is to be broader, deeper and surer than we now possess.

The reason for the coming advance is that which has promoted the development of the last ten years. It is clearly recognized by those who concern themselves with such problems that the essential phenomena of disease are fundamentally the result of chemical interaction, that when an organ or a tissue becomes affected with disease the processes involved are all chemical or physico-chemical. In the case of diabetes mellitus, for example, the complicated chemical processes that are involved in the utilization of the sugar of the body are altered or do not occur, and, in consequence, nutrition is disorganized. In inflammation, in pneumonia, in typhoid fever, and tuberculosis the processes, although due to microorganisms, are themselves fundamentally chemical just as much as those in gout, rheumatism and rickets. In fact, there is no abnormal condition of the body or of any of its organs, not excluding even the malignant growths, that is not fundamentally of chemical causation.

I desire to emphasize the chemical causation of disease because, in the first place, although it is in many quarters tacitly or openly accepted, it is not allowed in reality its right place in any survey of disease, and, in the second place, because this is the line along which medicine is yet to win its great triumphs. It is the recognition of the overwhelming importance of physiological and pathological chemistry to the science of disease that has caused the extraordinary increase in the army of workers in this field.

The activity of these researchers will inevitably result in solving many of the problems which now appear so difficult and obscure. It will involve also such an addition to knowledge in this department that the whole subject will be revolutionized. Every advance in the science of disease means a limitation of the present crude treatment of disease, a growing disuse of the drugs and chemicals to which the physician of to-day resorts, and it will render possible more and more either the

preparation and employment of the very compounds that the living cells of the body produce for their own defence against disease, or when the nutrition alone is disorganized, as in the case of pancreatic diabetes, the replacement of those processes which the normal cells undergo. In other words medicine will become less empiric and more rational the more we know of the chemical changes that occur in the normal as well as in the diseased cell.

The physician of twenty years from now, if he wishes to profit from all these advances and to keep step with progress, must have an amount of knowledge of physiological and pathological chemistry far in excess of what he is ordinarily required to have to-day. If he does not have that knowledge he is not merely behind his time, he is intellectually marooned.

We are now at the stage of transition between the old and new phases of medicine. From now on, while the old methods which have been of service will be retained, new ones of an intricate order will be employed and a deeper, more accurate knowledge of the functions and processes of living matter will be the result.

Such a development is only in accord with our age and with the development in the other sciences. The alchemist had his furnaces, his crucibles, his retorts, his simple salts and reagents. With these he established the beginnings of chemistry, but it was only when the balance was introduced that exactness began to play its part. To-day the old methods are still used in certain simple chemical operations, but the vast body of organized knowledge called chemistry is the result of the employment of methods which were not even dreamt of by the chemists of the eighteenth century, not to speak of the alchemists.

The same may be said of physics and electricity. When Helmholtz visited Faraday in his laboratory in 1853 he found that the latter's apparatus consisted of a few wires and some bits of old wood and iron. What a far cry from such an equipment, with its simple methods, to the outfit of an electrical laboratory, such as you have to-day in your university grounds, with its problems, the solutions of which are or may be as important fundamentally as any result that Faraday obtained!

What is the warrant for this prediction of progress in medicine? It is the Scientific Spirit which alone has promoted all the advances medicine has made in the past. It is not material that only a few are possessed of that Scientific Spirit, for only an infinitesimal portion of mankind has ever manifested it, and nevertheless all progress is due to it. The number of researchers in these lines, as has already been pointed out, is greater than it has ever been before, and to those of

to-day will succeed to-morrow a still greater number. Then there is the nature of one of the problems involved. Life as manifested in the single animal or vegetable cell is an inscrutable mystery, or it appears so to be, but the human mind will never recognize any obstacle to its progress, and as the problem is of transcendent interest it will ever attempt the solution of the secret. Medicine, therefore, will inevitably gain enormously, for every fact won regarding the constitution of living matter and the solution of the secret is a contribution to rational medicine.

The bearing of all this on the courses of medical training designed to fit the student for the practice of medicine during the two coming generations is obvious. The student who thinks that the practice of medicine in the future will not be much different from what it is now will certainly be disillusioned. He should recognize that a change is coming and that he must do his best to orient himself with regard to it. Of course, this change will not take place all at once, but it will be accomplished in the next twenty-five years, and it will be a much more profound one than any which has yet taken place in the history of medicine.

One of the defects of every medical curriculum of to-day is that it is constructed with the idea of turning out the student at the end of four or five years of study as a finished product in all departments. I hold that to be a profound mistake. That result is unattainable even with the exceptionally able student. As the practice of medicine was thirty years ago it was possible to equip a student of fairly average ability with a large amount of the knowledge he needed afterwards in the exercise of his calling. I do not say that he was so equipped in every instance, for the instruction at the bedside was not nearly as efficient as it is now. To-day there is more earnestness in those who instruct and the teaching is vastly better than it has even been, but in proportion to what he is subsequently supposed to know the student acquires less in the four or five years of his course than the student of thirty years ago was compelled to know. He knows much more of the sciences, his proficiency in clinical medicine and surgery is much greater, and yet, though he may be a credit to the institution which gives him his training he is not the peer of his type of thirty years ago.

Now this is not the fault of one teacher or group of teachers. The clinical teacher is apt to think that he has not enough of time, that the sciences are crowding too much on the attention of the student and leave him little opportunity for training in the professional subjects. The clinical teacher everywhere is prone to assume that the student

should, after two or three years, show as much insight in regard to the practical side of medicine as he, the teacher, has, who has been training himself for ten, twenty or thirty years. The student would be a genius, nay, an astounding marvel, if he could measure up to that standard.

Even if five years were devoted to the clinical side the student would still not be a finished product. As it is, he is supposed to acquire a good knowledge of the sciences and at the same time the knowledge and experience in clinical medicine and surgery that those who are much senior to him did not have when they graduated. Take a concrete illustration. Thirty years ago the physiology of the nervous system was an unknown, or almost unknown department, and, of course, clinical neurology was chaos itself. To-day much still remains to be ascertained, but what has been explored and determined is such that to know it well requires years of attention. Is it possible to train a student in five years in clinical medicine generally so that he will readily diagnose a case of disseminated sclerosis, of disease of the cerebellum, of syringomyelia or of anterior poliomyelitis?

The fact is that while the clinical teacher is doing right in training as he does, the motive and expectation prompting it all is wrong. No institution with teachers and staff, all of the genius order, would justify that expectation. It is not possible to turn out a thoroughly scientific physician after five years of training, and it is as impossible to equip thoroughly a student with the clinical lore and experience so as to enable him to deal intelligently with all the cases that he meets in the first few years of his practice. Further, as the years pass, the discrepancy between the aim and the achievement of the teacher in this respect must grow greater and greater.

The question which may now be asked is what ought to be the aim? I hold that the first requisite in the attainment of the student is not quantity but quality. To know a great many things in medicine is of no value if there is not therewith the ability to apply the knowledge in concrete cases. The quality demanded involves a special training, a training that should develop precision of thought, the rigidly logical power of the mind and the capacity to recognize whether the facts ascertained in a particular case are adequate to afford the basis for either a generalization or a diagnosis. To attain that result is to develop the Scientific Spirit.

That Spirit is to be developed in the student of medicine by a rigid training in all those subjects which permit exactness, in the sciences, for instance. The sciences serve a double purpose in medical education. A knowledge of them is the basis of the art and practice of

medicine. I have already pointed out that it was the development of physiology, pathology and bacteriology that brought about the great advances of the last thirty years. What medicine and surgery would now be had they not progressed is not difficult to imagine. Without a knowledge of them no physician can attain the first rank or be even mediocre in the pursuit of his calling. The sciences are then absolutely indispensable in medicine as enabling the student to understand the fundamental phenomena of disease. They are of inestimable value from another point of view. As they are the subjects in which exactness is possible they can be made to serve to bring out all the powers of the student in regard to precision of thought and observation and a right training in them ought to endow the student of medicine with a dexterity that he can get in no other way.

The training in the sciences of the medical course then must serve to develop the Scientific Spirit. If a student does not, when he is being so trained, attain that clearness of mind, that capacity to relate facts to one another and to apply them in concrete cases he has failed in the absolutely essential thing in medicine. Lacking this power and precision he will not acquire it in any training at the bedside. On the other hand, if he is properly trained in the laboratory he readily acquires and applies the methods of clinical medicine and surgery.

The sciences then should be carefully cultivated by the student in the undergraduate course, not to the exclusion of the other subjects which are known as professional, but as necessary to the latter and in order that the Scientific Spirit may be developed.

The great difficulty in this matter that is soon to confront us is how to adjust the courses to each other so that there will result the greatest advantage to the student. If bio-chemistry is to play the part I have predicted for it, it will mean a serious addition to the curriculum already heavily loaded, and, of course, there must be a curtailment of time given either to the other sciences or to the professional subjects in order to allow room for it. I have no doubt that a certain amount of readjustment is necessary in the sciences, but the introduction of the new subject should not be made wholly at their expense, for some of the time necessary should be provided for in the increased time demanded of the student.

Of course a proposition like this will at once be objected to by the clinical teacher and, perhaps, also by the student. The latter may ask where he is going to get the clinical experience which he requires in the practice of medicine. The answer to this is, that all the remainder of his life is to be a training in clinical medicine and surgery. If

then, at graduation, his knowledge of these subjects is not as ample as he would wish it to be, he can and will remedy the deficiency. If, on the other hand, he has not had at graduation a good training in the sciences grouped under medicine, in ninety-nine cases out of every hundred he never will. Once graduated from the medical school he will not feel any desire to go back to laboratories for an adequate knowledge of the sciences, and if he does return, he will not have the patience which will carry him through the necessary routine and drudgery to that end. I would not say that such a student would be a failure in his profession. If, however, he devotes himself to medicine he may not in the future be more than a superior to the nurse of his patient. If he specializes in surgery, he may, perhaps, be what is called a brilliant operator, and may be able to show neat joints, clever anastomoses, good amputation stumps and other prized results. The plumber also can make neat joints and clever connexions in drainage pipes, and, like the surgeon, thereby save life and make for its comfort and security. What student, however, amongst my hearers to-day aims only at being merely a superior nurse or a surgeon of the plumber type?

It is a recognized maxim that if you wish to develop a violinist you must catch him early, and the earlier the better. It is a fixed law of our mental life that there is a special time for everything. My own observations on the careers of students conducted during the last twenty-five years leads me to believe that this is particularly true also in science. If the student wishes to develop the scientific mind in the highest degree he should begin not as early as he who wishes to become proficient with the violin, but certainly before the twenty-fifth year of age. After thirty the habits of the mind tend to become fixed and there is little margin for the free movement that a full scientific training of the mind requires. The mind of the individual is in respect of scientific discipline at its maximum of plasticity and receptivity between the age of eighteen and that of thirty, and that period of life should, in the student of medicine be given over largely to the acquisition of a knowledge of the sciences and to the development of the scientific mind.

But I think some one will say to himself that the speaker has in his mind only the preparations of recruits for the research laboratories. Not at all. What I have said hitherto bears only on the training of those who are going to practice the profession of medicine. Not only the call of humanity, but also the interest of the future physician demand the precision and the clear-cut ideas that come from an adequate training in the sciences. Why should the laboratory be supposed to monopolize the Scientific Spirit, the desire and the efforts to know,

accurately why and how? Is it not a serious reflection on the medical profession to maintain that there is and ought to be a great gulf fixed between the laboratory worker and the skilled physician?

I am not beset with anxiety for the army of laboratory workers, for I am certain that if the vast majority of the students are scientifically trained for professional practice the laboratory will take care of itself. It will always have recruits, and in the future more than now. Nor would I have you think that the laboratory is the only place where scientific work may be done. In the wide field of medicine there is an unlimited opportunity for the exercise of scientific precision. That this is so may be taken on the word of no less than Dr. James Mackenzie, of Burnley, England, whose article on this subject in the July issue of the *Western Canada Medical Journal* will amply repay perusal. In 1881, at the International Medical Congress, Dr. John S. Billings pointed out that the vast majority of the 20,000 papers and publications on medicine issued from the press in 1879 were worthless simply because of the lack of accuracy in the observations. Does the vast mass of literature on medicine now annually issued show any improvement in this respect? To judge from Dr. Mackenzie's observations it does not, for he claims that the exponents of medical science ignore the necessity for making accurate observations, and goes on to say: "Although they talk of their careful methods of observation, a critical study of medical writings will reveal the fact that they bristle with evidences of inaccurate observations. What they call observations are but a mixture of imperfect observations and unwarranted assertion. While they imagine that they are stating a fact they are actually at the same time recording an opinion."

If Dr. Mackenzie is right, and I believe he is, there is very great need for improvement. When medical literature teems with mistakes in observation and errors in diagnosis, what should be expected in those who do not record their observations? Is there any excuse for the mistakes that are sometimes made, except that those who make them are not trained as they should be?

It is evident that what is wanted is accuracy, and accuracy all the time. Clinical experience is of absolutely little value if it is not accompanied by the desire and will to be thorough and precise.

The habit of being thorough and precise can only be formed in the undergraduate course and under the direction and watchful control of the various teachers. That habit is every whit as valuable as, if not more so than, the most systematized information which he can acquire in his medical course. When that habit is firmly established in the

student it is a permanent guarantee that he is in possession of the Scientific Spirit, the Spirit that does not care for shams and make-believes, or anything but the truth. With that habit, and actuated by that Spirit, he can conduct research in his ordinary medical practice that may be as valuable as any output of the laboratory. Dr. Mackenzie points out that there is still an immense field in practical medicine outside of hospitals and laboratories which only awaits researchers of the proper kind. That work is of no value unless it is properly done, and those who do it will be rewarded as fully as they would be if they devoted their lives to the most fruitful research in a laboratory.

To the student then I would say: Prepare for the future by training yourself in being exact and in getting exact ideas. Take stock of the fact that the development of medicine is to be along the lines of biochemistry, normal and pathological. Acquire a knowledge of this science and of physiology and pathology, for it will be of immense service to you in after years in enabling you to keep in touch with the advances on the scientific side of medicine. Appreciate and carefully undergo the training that the laboratories can give you, and at the bedside be content with nothing but facts and rigidly examined deductions therefrom. Never follow a method in diagnosis or in your observations if you can avail yourself of even a slightly better one. Early train yourself to be adept in the use of all the instruments that aid in precision, the microscope, the thermometer, hæmocytometer, the hæmoglobinometer, the stethoscope, the hæmometer, the ophthalmoscope and the laryngoscope. It may be that the locality where you will pursue your professional career will be far from any centre where specialists are to be consulted and you must do your utmost for the poor in your constituency. If you are incompetent the rich may escape the consequences, but the poor cannot.

You have, above all, one duty to yourself, and that is to cultivate to the utmost the powers of mind which you possess, and do not think that done when you graduate. Continue the training until you are passed the meridian at least. The average individual takes short views, forecasting not more than two or three years ahead. The medical student should look twenty and even thirty years ahead. One of the former teachers in this Faculty is credited with saying that a man's best work is done at forty. What, however, is that best work? Is it some great achievement in statesmanship, commerce, or industry, some great executive or professional performance, or some great discovery in science? Not at all. These are in themselves more or less accidents, and the opportunity to do them may not occur in the lifetime

of the many. The greatest achievement of which the individual is capable is the training of his intellectual powers to the utmost in all his years up to the fortieth. That is his best work, and if it is not done before his fortieth year, the end of the plastic period of his life, it is not done and cannot be done afterwards. Having done that best work, the output of the rest of his life is the result and the measure of the extent of that best work. The individual who trains himself to the utmost till he is forty may feel tranquil that he will not fail of his reward. Even in the training itself there is the reward, and in later years of life there is no satisfaction so deep as that which comes from the conviction that you have done the utmost of which your mental life is capable.

And I would advise you further to conserve to the utmost your physical powers. I think that our modern systems of education are on the whole not sufficiently insistent in this respect. A well balanced physical development should accompany the mental, not only to aid the latter but also to aid in moral culture. I believe that the daily expenditure of physical energy, whether it be in toil or in athletics, exercises a very powerful moral influence in the formation of character. When one hears toil called a curse, one loses patience for if it is not unmitigated and excessive, toil is not a curse but a blessing to man. Those who toil with their hands are amongst the most moral portion of mankind, and this was recognized by one of the oldest Greek writers, Hesiod, for, as he put it: "In the path of noble manhood the Gods have placed sweat."

Further, remember that your life is all before you. It has been said that there is no more severe critic than the young man, and that there is none more unjust. If your mental make-up is worth anything at all your opinions and your standards of things will inevitably alter with the years. It is, therefore, the part of wisdom to be as little dogmatic as possible. Honour your teachers and love and be thoroughly loyal to your university, for only in that spirit may you share in the best that she imparts. Once more, and finally, cultivate your mental powers to the utmost and therewith the Scientific Spirit. Follow all your life, wherever it may lead, "the high, white Star of Truth." As the years go by there are many interests lost, often with the result that life becomes dull and commonplace, and the individual a spent force. If, however, intellectual curiosity, the Scientific Spirit, is cultivated it increases in strength with the years and departs only with life. And it brings at least one reward. The ancient Peripatetic Philosophers truly held that, while there are many things that contribute to a happy life, mental excellence is the best of all.

OBSTETRIC NURSING.

BY

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In talking to you this evening on the subject of Obstetric Nursing I shall endeavour to confine myself strictly to the practical side of the question, and will deal with the subject of the obstetric nurse and her relationship to the patient and to the physician, sketching more or less in detail an outline of her duties and responsibilities from the beginning to the end of her engagement with an individual case.

Commonly, in this city obstetric patients engage their nurses without reference to the physician, and there are in this city two classes of obstetrical nurses, first, those who confine themselves absolutely to obstetric nursing; and those who have received a general training in some large hospital and who occasionally take an obstetrical case, particularly if it is complicated. The relationship of these two classes to obstetric work is absolutely different. The first class are usually subject to engagements months ahead, and have an opportunity to pay a preliminary visit to their patient and to make all preparations for the expected confinement. While the second class are not usually called until the patient is in labour, and thus these nurses have to take things as they find them.

Those who make engagements ahead, I would advise to try and make a hard and fast arrangement with the patient as to engagement from a certain date, to a certain date, and to have a distinct understanding as to the date on which pay begins, as some women are very unbusiness-like and seem to expect that a nurse should wait for days or even longer without receiving pay. When a nurse is under engagement but is not actually staying with her patient, she should consider that her time belongs to her patient and should never be out of reach day or night, so that she can be called any moment.

When making an engagement to attend a patient the nurse should note the general condition of her patient, and, if possible, should be shown the room that will be used as a labour room. She should note the general cleanliness of this room, its ventilation and what means may be available for regulation of temperature, in winter or in summer. For instance, in winter a warm room, large, well lighted and well ventilated, and of a southern aspect should be chosen. In summer the room should be chosen with special reference to its coolness. The room should be in a quiet part of the house, not, for instance, at the head of the stairs, where all the business of the house will reach the patient's ears. It should be, if possible, convenient to the bath room.

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The bed, preferably a single bed, should be so placed that the direct light from the window should not fall on the patient's eyes, and in summer so that the draft from the open window shall not blow directly across it. The condition of the mattress should be observed, it should be firm without being too hard, and should not be sufficiently soft to form a trough when the patient is lying on it, and, above all, it should be clean. If the bed is low, blocks should be prepared so that it may be raised to a convenient height. This precaution will do a great deal towards saving wear and tear of the physician and nurse. If the general cleanliness of the room is open to suspicion the patient should be advised to have it thoroughly house cleaned a week or ten days before the expected date of confinement.

At this time the nurse, if the physician has not already done so, should give the patient a list of the articles that she will have to provide for herself and the child. In making out this list a nurse should distinguish between those things which are essential and those things which are more or less luxurious, and should seek to adapt the outfit to the purse of her patient as far as possible. Some patients complain of the elaborate nature of the outfit requested by the nurse, therefore, try to arrange your list of articles to suit the varying purses of your patients.

The following constitutes a very useful outfit:—

Six abdominal binders, 1¼ yards long by 1½ yards wide, which should be washed and ironed so as to make them soft and comfortable. They may be made either of plain cotton, unbleached, or of thin Canton flannel. Personally, I have for some time given up the use of these binders, employing an ordinary "T" bandage in place of it, as I find the binders have a certain unfavourable influence in causing displacement of the uterus.

Three obstetrical pads, 1 yard square, made of cheap, unbleached cotton, and padded with cotton batting until about three inches thick. These pads are placed under the patient during labour or after, to catch the discharges.

2½ doz. vulva pads, made of absorbent cotton, 10 by 3 inches, and 2 inches thick, covered with cheese cloth or absorbent gauze. These should be done up in packages of six and sterilized.

One-half doz. old towels, freshly laundered, should be laid away with the other things and should be sterilized if possible, though this is not indispensable.

Two papers of large size safety pins, and 1 paper of small size; 2 new nail brushes, one for the physician and one for the the nurse,

which should be wrapped in cotton and boiled; ½ lb. absorbent cotton; 4 ozs. lysol; 4 ozs. green soap, or one bottle of synol; 6 ozs. alcohol, to be used for rubbing the patient; 2 pieces of rubber sheeting, each two yards square. Instead of rubber sheeting, enamel cloth may be used for this purpose, as it cheaper; 2 enamelware wash basins; 1 bed pan; 1 douche bag, 2 quart size; 1 clean slop jar or pail for soiled dressings, with cover if possible; 1 doz. clean towels, besides those above mentioned should be available, and a good supply of sheets, pillow cases, and night gowns should be at hand for the patient's use.

For the infant one requires:—

Eight ozs. olive oil; 1 tube white vaseline; 1 cake Castile soap; 6 flannel binders, 6 inches by ½ yard long; 1 soft flannel blanket one yard square, to wrap the infant in immediately after birth; 4 doz. diapers at least should be provided; 1 infant's bath tub; 1 bath thermometer; 1 box talcum powder; 1 powder box and puff; 1 infant's hair brush; 2 sponges, one for the body and one for the face.

The following clothing should be provided as a minimum supply:—

Four undershirts of knitted wool; 4 flannel petticoats; 4 flannel night gowns; 10 slips, as simply made as possible. These should be made to open at the back.

A supply of old linen is useful for swabs, and may be provided. These various articles should be laid away in a cupboard or bureau drawer, all ready for use beforehand, so as to avoid confusion and delay after the labour is under way.

In addition to these articles there should be provided a small package of tape or stout linen to serve as ligatures for the umbilical cord.

Nurses should avoid giving medical advice to their patient outside of the question of clothing during pregnancy, the condition of the bowels and the care of the nipples.

A few remarks at this point on the hygiene of pregnancy may not be out of place. The pregnant woman should be careful to avoid over fatigue, though plenty of exercise in the open air should be indulged in. A warm bath, of temperature 105°, should be taken at night, at least twice a week. If the woman is in the habit of taking a cold bath every morning, there is no reason why she should interrupt this habit during pregnancy, provided reaction is prompt. Movements of the bowels should be obtained regularly, and the patient should be warned against constipation.

The diet should consist chiefly of fruits and vegetables, and meat should be somewhat limited. Plenty of water should be drunk between meals. The condition of the mouth and teeth should receive attention,

as during pregnancy the secretions, which are normally alkaline,tend to become acid and facilitate carious processes. Alkaline mouth washes should be used after each meal and before retiring, and it is not a bad plan for pregnant women to drink a large tumbler full of cold water containing one-half teaspoonful of cream tartar dissolved in it just before going to bed. The nipples should, during the last six weeks of pregnancy, be washed with Castile soap and hot water, and friction applied to them by means of a piece of flannel. They should then be bathed in a solution of equal parts of alcohol and witch Hazel. They should be rubbed two or three times a week between the fingers, and drawn out, at the same time being well covered with white vaseline. The patient should be instructed never to touch her nipples with unclean hands.

Prompt attention should be paid to an obstetric call and the patient should be reached as soon as possible. Usually, in the wealthier class of patients the nurse is called before the physician, who generally leaves instructions to that effect, and the calling of the physician is thus frequently the responsibility of the nurse, so that the obstetric nurse should be familiar with the signs and symptoms attending the various stages of labour.

The nurse should first, even before changing into her uniform, see her patient and find out from her when the pains began, and should note their frequency and character. She should then plan her proceedure according to the time she judges at her disposal before critical stage of labour will be reached. This varies, of course, according to the circumstances. The nurse on seeing her patient for the first time in labour should note her general condition, and, if time permits, should record the pulse, temperature and respiration. She should also note carefully the patient's statements as to when the pains began, their site and frequency. A careful enquiry should be made as to vaginal discharges, and their character should be examined.

One of the most essential things in the preparation of the patient is the clearing out of the rectum by means of enema. This should be done if at all possible. In the ordinary routine of preparation of the patient it may be given immediately before or after the bath, and, if the first stage of labour lasts over eight hours the enema should be repeated.

One often hears the statement that the bowels have moved repeatedly during the few hours before the onset of labour, and, therefore, the enema was not thought necessary. It is just in these cases that the enema should be given, as the bowels are usually overloaded with retained

fæces when such a history is obtained. Therefore, I again repeat the most essential things in the preparation of the patient are the clearing out of the bowels, and the thorough cleansing of the vulva and thighs.

If the patient has not had a hot bath within twenty-four hours, and time now permits of it, she should be advised to take one at once. As a rule, it is better for the patient not to sit down in the bath, but to kneel therein, and to pour the water over herself, as in multiparæ especially, the water may enter the vagina and carry infection. Special attention should be given to the cleansing of the abdomen, vulva and thighs, and these parts of the body should be bathed after the bath in a 1-2000 solution of bichloride of mercury.

From this time the use of the toilet must be forbidden and the patient should wear an antiseptic pad, which should be changed from time to time as may be necessary until the latter part of the second stage. Each time this pad is changed the parts should be bathed with antiseptic solution.

While the patient is giving herself the bath the nurse may be preparing the labour room. Unnecessary furniture and toilet articles, etc., should be removed, though it is unnecessary to make the room into an ordinary operating room. The really necessary articles of furniture are, the bed, a low table, two ordinary chairs, a slop jar or pail, and an old rug or some protective paper to keep the carpet from being soiled.

The labour bed should be made as follows:—To the right side of a double bed and about its middle should be placed one of the rubber sheets provided for this purpose. This is covered by a clean white sheet, and both are pinned to the mattress so as to maintain them in place. Over these is placed the draw sheet, which should lie midway between the head and foot of the bed, so that the patient's buttocks will rest in the middle of it. These must be pinned securely at the corners in order to prevent slipping. Over this should be placed a second rubber sheet over which a second draw sheet should be placed, and both securely pinned. Over this draw sheet is placed one of the prepared obstetric pads, also securely pinned.

This obstetric pad may be changed when the final preparations for delivery are being made, should it become soiled in the meanwhile. To cover the patient, a fresh, clean sheet should be used and a light blanket or other necessary covering.

The patient should be clothed in a clean nightgown, over which she may wear a suitable wrapper while moving about, and clean stockings and slippers. In cool weather she may wear besides this a silk or thin wool undervest. Her hair should be carefully combed, brushed and braided.

The nurse should see that a plentiful supply of the hot sterile water is obtainable, and should fill a carefully cleansed bedroom jug with boiled water, placing it where it will cool as rapidly as possible, and covering it with a clean towel, so that a supply of cold, sterile water may be available. All water used for solutions should be boiled, and never under any circumstances, should water freshly drawn from the tap be used for this purpose.

A pair of scissors, three or four ligatures for tying the cord, one-half dozen gauze swabs, about two inches square; a glass, and a rubber catheter, and possibly one or two pair of artery forceps, should be dry sterilized, or placed in a 2 per cent. solution of lysol until needed. One cup full of warm boracic acid solution should also be prepared, and a bundle of absorbent cotton swabs, each swab being about the size of an ordinary hen's egg. These should be placed on the small table set aside for the physician's use.

A basin to catch the after-birth, or other dish suitable for this purpose, should also be at hand. A soft piece of linen and a piece of old blanketing or flannel should be placed at hand for the reception of the baby.

The nurse should make all her preparations quietly and without undue fuss or disturbance. She should avoid, if possible, all hurry and confusion. Her manner should be calm and collected, she ought to move about her work as if it was a matter of every day routine, her object being to inspire her patient with confidence, and to support her moral strength throughout what is at the very best a trying experience.

In the early stages of labour it is unnecessary for the patient to remain in bed if she cares to move about, in any case, she may sit up in an easy chair, and if the pains are not occurring with too great frequency, she should be provided with some simple occupation, such as attending to her hair, manicuring her nails, or some little duty that may be of help to the nurse.

The whole atmosphere of the labour room should be one of calm, quiet, self-control, and, if possible, all nervous or excited relatives should be kept out. The proper management of the patient and her relatives during this trying time calls for the greatest tact and discretion on the part of the obstetrical nurse. The patient should be encouraged to talk of light, unconsequential things, and the nurse should avoid relating her experiences of other cases, and should keep the conversation away from the subject of obstetrics as much as possible.

When to call the physician is sometimes a matter of no little difficulty in deciding. I think that, as a general rule, the physician should

be notified as soon as the labour pains begin that his patient is in labour, and the nurse should endeavour to obtain direct orders as to when the physician desires to be summoned to the case. Personally, I may say that it is my custom to request the nurses to notify me of the onset of labour, except between the hours of midnight and 7 a.m. During the night I ask them only to call me if they really feel that my services are required. Thus, by being notified of day cases the physician can arrange his work so as to permit him a maximum of liberty in order to devote himself to his obstetric duties.

All obstetric nurses should be familiar with the clinical phenomena of labour. I will discuss briefly a few of the more common phenomena so as to call to your recollection the main facts, with which you are familiar. False pains may be distinguished from true pains by the fact that they occur irregularly, and are chiefly located in the front of the body. True pains may begin in the front of the body, but they soon extend to the back, and they occur with increasing regularity at intervals of fifteen to twenty minutes. The escape of a thick, bloody mucus, known as the "shew," attends the onset of true labour in many cases. When the membranes rupture early, or when the water escapes before the pains have begun, the labour pains are usually more frequent and more severe than when such is not the case. It is in these latter cases that the nurse often thinks delivery impending, long before the mouth of the womb has dilated.

When the first stage of labour has concluded, the os is completely dilated and the membranes usually rupture, permitting the escape of the waters. In multiparæ the physician should always be summoned when the waters have escaped, especially if the pains recur at intervals of from three to five minutes.

The second or expulsive stage of labour is characterized by the occurrence of straining or bearing down pains. The patient should not be encouraged to bear down in the first stage of labour, as such efforts are perfectly useless and tire her out. On the other hand, in the second stage the patient should be encouraged to bear down as much as possible during the pains, as by this means she can hasten delivery in a large proportion of cases.

In the first stage of labour the discharge from the vagina consists of blood stained water, in the second stage of labour the discharge becomes mucoid in character, so that during the second stage the nurse should be on the watch for the escape of thick, clear mucus from the vagina, as an indication of the rapid advance of the presenting part. The advance of the presenting part may be recognized by the pressure of the

advancing fœtal part upon the anus and perineum causing a certain amount of bulging outwards. A common sign of descent of the presenting part, is the impulse of the patient to have a movement of the bowels; thus, in a patient known to be in the second stage when this desire is expressed the nurse should make sure that there is no evidence of bulging during a pain, before allowing the patient to get up for this purpose. The advance of the presenting part may sometimes be felt by making pressure upwards from below with the finger-tips placed half way between the anus and the tuberosity of the ischium, just alongside of the vulva. Pressure in this direction will encounter distinct resistance if the fœtal parts are just about to come on the pelvic floor.

Thus, the nurse should summon the physician in the case of primiparæ, as soon as there is any evidence of bulging of the perineum, especially when this is accompanied with the escape of a thick, clear mucus from the vagina, and frequent pains of a bearing down character. In multiparæ the occurrence of bearing down pains and the escape of the waters indicate that the physician should be summoned at once.

Should the labour advance rapidly and delivery threaten to take place before the physician arrives, the patient should be kept in the left lateral position in bed, and urged to pant, or cry out, with the recurrence of each pain, while the nurse should endeavour to hold the presenting part back, should the perineum bulge. This pressure of the nurse on the perineum should be made only during the acme of pain, and the nurse's hand should be wrapped in a sterile towel. Pressure on the perineum, if kept up constantly, tends to act as a stimulus to uterine contraction, thus this pressure should be avoided except when necessary to hold back the advancing fœtal parts.

The nurse should have ready all the things required for the physician to wash and sterilize his hands, and should now make final preparations for the actual delivery. She should have in the labour room all water and other material that she is likely to require throughout the further course of the labour. While waiting for the physician the nurse should avoid leaving the room or leaving the patient alone, especially if the pains are markedly severe.

During delivery the nurse is usually called upon to administer the anæsthetic under the direction of the physician. A few drops of chloroform on the mask with the onset of each pain is usually sufficient to produce obstetric anæsthesia. Care should be taken not to allow any drops to fall on the skin, or into the eyes, of the patient. To prevent

burning of the skin by chloroform the patient's face should be lightly smeared with vaseline.

In this country the patient is usually delivered in the left lateral position, and the nurse stands on the left side of the bed. She should endeavour to keep the patient's legs flexed and the thighs well separated. Usually a folded pillow is placed between the knees for this purpose. Some physicians employ a Kelly pad during delivery, and this covered by a sterile towel is slipped under the thighs of the patient at this time. The further duties of the nurse now depend entirely upon her instructions from the physician in charge of the case. Usually she is called on to take charge of the fundus of the uterus while the child's body is being delivered, and she should keep up this pressure until such time as the physician is at liberty to replace her, which is usually just after the cord has been tied and cut. She then receives the infant in the coverings she has prepared for this purpose, and, having wrapped it up warmly, she places it in a convenient place where it will be out of reach of harm and will not be in the way. The infant should be placed on its right side so as to favour the closure of the foramen ovale, and because the liver is on this side and is one of the heaviest organs in the child's body. She should see that the child is so placed, that its nose and mouth are free from pressure in order that the child's respirations may not be interfered with. Twice I have had the unfortunate experience of handing a living child to a nurse to be placed in its cradle, and when I have gone to see it twenty minutes later I have found it smothered to death through having been placed face downwards on a soft feather pillow.

During the interval, while waiting for the delivery of the after-birth, the nurse should replenish the basin containing the antiseptic solution in which the physician bathes his hands. During the delivery of the placenta the basin in which the after-birth is to be caught should be held close to the vulva by the nurse. As soon as the after-birth has been delivered, this basin should be covered with a clean towel and placed away until the physician is at liberty to examine its contents. If there are no stitches to be put in place, the patient is now cleaned up and all soiled linen removed. She should be washed as quickly as possible with a warm antiseptic solution and dried.

The upper obstetric pad, draw sheets and upper sheet should be now removed, a fresh obstetric pad placed beneath the buttocks, and a large vulva pad applied which may be held in place by means of a "T" bandage.

As a rule the physician keeps his hand on the fundus for at least one-half hour after the delivery of the placenta, and in cases where a

broad binder is used, it is frequently not put in place until after the child has been washed. In doing up a patient after delivery, the nurse, if left alone with the case, should from time to time make a little gentle friction upon the fundus, to be sure that the uterus remains well contracted. The patient should not be turned on her side during this washing up process unless the nurse keeps one hand upon the fundus, as this position favours relaxation of the uterus and permits the entrance of air within the vulva.

After doing up the patient, and before proceeding to clean up the room or bathe the baby, if this has not already been done, the patient's pulse should be taken and recorded, and the condition of the fundus of the uterus noted. If the pulse rate is at or near 100 per minute, and the fundus is high and soft, hæmorrhage is to be feared, and a close watch for this accident should be maintained. If all is well, the nurse should now clean up the room, removing all soiled linen, etc., and leave the patient in a quiet, darkened room to rest. While cleaning up it is well for the nurse to return from time to time to her patient, until she is satisfied that there is no further danger. After severe or operative labours it is well to have some reliable relative or friend to sit with the patient while the nurse is busy attending to the various duties which devolve upon her at this time.

The Infant.

In giving the baby its first bath certain details are of importance. It should be given in a warm room, in winter, by the warm coils or in front of a fire. In summer, care should be taken that the spot selected is not in a draft.

The bathing should be conducted as rapidly as possible. As a rule, I think, nurses are not careful enough in washing the baby's face and head; the child should be held so that water cannot run into the eyes. The face and head should then be dried with a soft cloth before the body is washed.

At the first bath the baby should be examined from head to foot for injuries or deformities, and, if any are found, the physician's attention should be called to them.

The cord should be bathed in alcohol and then dusted with some drying powder, such as starch five parts, salicylic acid one part, and a small gauze dressing applied so as to completely envelop it. This dressing should be changed as infrequently as possible, but each morning when the child is sponged, it should be carefully examined. If in good condition, fresh powder should be applied under the dressing. If soiled,

the gauze should be removed, the cord bathed in alcohol, and fresh powder and gauze applied.

The napkins should be pinned as loosely as possible, and should be changed whenever soiled.

The mouth should be gently swabbed with swabs moistened in boracic solution before nursing.

The infant should be applied to the breast every six hours till lactation is established, and then every two hours from 7 a.m. to 9 p.m., and at 1 and 5 a.m.

Nothing else should be given a new born child without the physician's order.

The baby when fed should be placed in its basket or cot and lightly covered. It should be protected from bright lights and from loud or sudden noise. It is undesirable that the new arrival should be the subject of the admiring attentions of its parents, relatives or friends, and the nurse should exert her tact to the utmost in order to prevent its constant disturbance.

Artificial foods, gripe waters, and the ever ubiquitous "Comfort" are interdicted, and should never be used without the physician's knowledge.

The Puerperal Period.

The vulva pads should be changed every four hours during the first six days, and more frequently if necessary. On each occasion the nurse's hands should be scrubbed with a nail brush and plenty of hot water and soap. They should then be held in a two per cent. lysol solution, or a 1-2000 bichloride of mercury solution for at least one minute.

The vulva should be swabbed with absorbent cotton dipped in either of the above solutions, from above downwards, care being taken to swab all the folds. It is undesirable to pour or douche solutions over the vulva, as there is danger of washing infected material into the vagina.

The vulva should then be swabbed dry and dusted with boracic acid or other dusting powder and a fresh pad applied. A pad once displaced should be removed, and a fresh pad applied.

The position of the fundus, character of lochia, and condition of the breasts and nipples, should be recorded on the chart twice daily. A record of the urinary and fœcal discharge should be kept, and the temperature and pulse charted every four hours for the first four days, and then twice daily till the patient is out of bed. A rise of temperature to over 100° at any time should be immediately reported to the physician.

The nipples should be bathed in boracic acid solution before, and immediately after, nursing. After nursing, if the nipples are tender, they may be bathed with a solution of equal parts of alcohol and Witch Hazel, in addition to the boracic acid, then dried carefully and dusted with Bismuth subnitrate.

If the breasts become engorged and tender they may be supported by means of a carefully fitted "R" binder or an ordinary "Murphy" binder, care being taken to bring them well toward the middle line of the body before pinning the binder.

The patient should be sponged from head to foot daily with hot water and soap, and should receive an alcohol rub afterwards.

Fresh bed linen should be used every second day during the first week at least.

The patient should not be permitted to assist to any great degree in the performance of her toilet during the first week, but may gradually resume this duty during the second week of her lying-in.

A dose of castor oil should be given on the third day and the physician's attention called to any irregularity in the action of the bowels after that time.

The diet should be very restricted during the first two days. Nothing but liquids, and toast or stale bread being permitted. On the third and fourth days half diet may be given, and after this the patient is placed on full diet.

The patient should be settled for the night as soon as possible after the 9 p.m. nursing.

The morning and evening toilets should be performed as expeditionsly as possible. The nurse should see that she has everything at hand before starting, so that she will not have to leave her patient in the course of it, to look for something she has misplaced or forgotten.

The nurse should provide herself with a tray to hold her dishes, swabs, pads, etc., for the vulva dressing, which she can prepare and bring into the room with her all ready. She then prepares her patient, removing soiled linen pads, etc., covering her with a sheet. Having sterilized her hands, she then performs the toilet of the vulva, arranges her patient and removes her tray, soiled linen, etc., at once.

The nurse should give considerable thought to the development of system in her work so that she may perform her professional duties with as little disturbance of the patient as possible.

Both in the morning and afternoon of each day the patient should be encouraged to rest, and sleep, if possible, and for this purpose the

room should be darkened and the house kept as quiet as possible during these hours.

The temperature of the lying-in room should be between 65° and 68° F., and care should be taken to secure good ventilation. It is a good plan to cover the patient up warmly, and open the windows wide for a short time at least once a day, the patient being kept covered until the temperature of the room rises again to 65° F.

Visitors who tire the patient should be excluded altogether, this can easily be managed by reporting to the physician in charge of the case who will then give definite orders in regard to admission of visitors.

Every nurse should be able to get two hours off duty each day, except perhaps, during the first three days after delivery, when she ought to be able to manage at least one hour, for a walk in the fresh air. The nurse should definitely state to her patient before leaving the house, when she expects to return, and should endeavour to return exactly at the time stated. This habit will avoid considerable friction and difficulty.

When the physician calls to see his patient, the nurse should present him with her record of the case and report to him verbally anything special to which she wishes to call his attention. Having answered all questions and received her directions, she should then withdraw from the room, remaining within call, and should accompany the physician to the front door, unless he relieves her from this duty. This enables the physician to give his final directions, and permits her to report anything she does not wish the patient to know about.

If any stitches have been inserted they will be removed on the eighth or tenth day. For this purpose the nurse should have prepared a pair of dressing forceps, a pair of scissors, a supply of sterilized swabs, and a basin of lysol solution, and should see that a nail brush, soap and clean towels for the physician's hands, are ready. If the light in the room is not good, the nurse should see that a candle or lamp is provided, in case a good light may be necessary. Before preparing the patient for this little operation, the nurse should inquire as to whether she is to be placed in the dorsal or lateral position.

About the end of the second week the nurse should get the physician to carefully examine the child throughout, and should draw his attention particularly to the condition of the navel.

When the case is to be terminated by operative procedure the instruments required should be wrapped in a towel, and, being completely submerged in water, should be boiled for ten minutes. They should then, still wrapped in the towel, be laid on a large dinner platter, or

other suitable dish, which has been prepared for the purpose, and the whole carried to the labour room and laid on the physician's table. An extra supply of swabs should be at hand, and the nurse should see that a good artificial light is obtainable. During the operation the nurse's duties depend entirely on the instructions of the physician.

The obstetric nurse fills a very trying position, and to be successful in this department of nursing a woman requires special qualities of endurance, tact and good nature, as she has in her care two patients both night and day. On the other hand, as a rule, the relationship between patient and nurse in an obstetrical case is peculiarly intimate, and the successful obstetric nurse makes many warm friends and holds an unique place in the family life.

In the home life, the obstetric nurse should endeavour to adapt herself as far as possible to the surroundings, and to the habits of the people with whom she is temporarily living.

If anything is not satisfactory to her, if she is not getting sufficient rest, or if there is anything else that is undesirable, she should report it to the physician and not to the patient, as it is the physician's duty to try to adjust matters and place them on a satisfactory basis.

The relationship between physician and nurse should be cordial, and their mutual support loyal and unquestioned. The nurse is the physician's representative and should remember that on him all the responsibility rests, and she should endeavour to keep him thoroughly posted as to the condition and surroundings of his patient.

NARROWING OF THE UTERUS SUCCESSFULLY TREATED BY OPERATION.

BY

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The patient, Mrs. G., aged 45, was seen with Dr. R. R. Parry on 16th July, 1907.

During the last two or three years the lady had suffered from a feeling of discomfort in her right side, which was more marked after exertion. The pain was of a dull, aching character, and was referred to the right upper quadrant of the abdomen, extending at times across to the left above the navel and behind beneath the right scapula. There seemed to be a fullness here at times. Occasionally there were pains of a crampy character. She had occasional attacks of indigestion. At no time did the pain extend down the groin line into the bladder, nor were there any attacks of frequent micturition

Family History.—Father died at 66 of cancer. Mother died when 48 of heart failure. Two brothers and one sister alive and healthy, two brothers died in infancy; one sister died of brain fever, and one sister had a floating kidney removed.

Personal History.—She was born in Canada, and in her previous life had never been very strong, was always compelled to be careful of her diet and health. When eighteen years old had "neuralgia of the stomach," which persisted more or less for a year. She married, and when carrying her first child had several mild attacks of pain in the abdomen. The confinement was uneventful. Eight years ago, when pregnant the second time, she fell, striking her right side on a board and fractured two ribs. This confined her to her bed for nearly four months.

Since this fall she has never been well. During the last two years she noticed a lump in the right side below the ribs, which was more marked at some times than at others. On pressing this lump she had a dull, sickening pain in the stomach. For the past two months she has not been well, but was not confined to her bed till the 15th of July.

She noticed the tumour very prominent and painful. The pains radiated to the back beneath the right scapula. She had sickness of the stomach, but did not vomit. The pain was quite severe at times, but fever was not present. On the 16th July, there being no improvement, Dr. Parry kindly asked me to see her.

The patient was a small, slight woman. On examining the abdomen a lump was observed on the right side just below the ribs and beneath the outer half of the rectus muscle. On deep inspiration the tumour was observed to move downwards. It was just beneath the edge of the liver. The right rectus was somewhat rigid, and it was impossible to palpate it without causing pain. The right kidney was displaced downwards and the tumour lay to the inner side of it. On attempting to replace the kidney some pain was felt. The pain did not extend down into the bladder, and no distress in the bladder was felt during any manipulation. When the patient took a deep inspiration the liver and tumour were depressed, but, owing to the pain and muscular rigidity, an attempt to hold it down during expiration caused pain, and hence was not persisted in. The temperature was not raised, although the pulse was faster than normal. The heart and lungs were normal. A diagnosis of gall stones was made, in the absence of urinary symptoms.

She was removed to the City Hospital, and on the following day an operation was performed. The abdomen was opened through the right rectus muscle. The tumour was found behind the peritoneum, and the

gall bladder and stomach were found to be in a normal condition. The appendix was also normal. The peritoneum covering the tumour was divided and the tumour found to be a dilated pelvis of the kidney. The other kidney was then palpated and found to be of normal size and apparently in a normal state. The right ureter was then palpated, in order to ascertain if the hydronephrosis were due to an impacted stone, but there appeared to be nothing of the kind present. The posterior parietal peritoneum was then closed and also the abdominal wound. The patient was then removed to a darkened room and a cystoscope examination made. Urine was seen to come from the left uretral opening, but none from the right uretral meatus. A large sized uretral catheter was then passed up the right ureter, but no urine escaped. This catheter was left in the ureter and the cystoscope removed.

The patient was then returned to the operating room, placed on her left side, with a medium sized sand bag under the loin. The right kidney was then exposed and dislocated out of the wound. One or two large veins were found crossing the dilated pelvis. These were clamped, divided and ligated. The pelvis was then exposed and found that the ureter entered the pelvis about three-fourths of an inch above its lowest point. The ureter was very much narrower where it entered the pelvis as the tip of the catheter was felt in the ureter, but it could not pass through the stricture. The dilated pelvis was more or less pyriform in shape, with the smaller end downwards. It was impossible to determine this before the abdomen was opened. On elevating the lower nipple-like process of the pelvis an incision was made into it one-half inch from the point of entrance of the ureter. After the urine escaped and the pelvis had collapsed, the incision was carried down through the stricture into the healthy ureter, where it came in contact with the catheter. Sutures of No. 0 chromic catgut were then placed through all of the coats of the pelvis and ureter. The sutures were so placed as to approximate the two ends of the incision and also the corresponding sides. The stricture was then treated in a manner similar to that which Finney does in his gastro-duodenestomy. A large opening was then obtained. Care was taken to approximate the edges carefully. The kidney was then allowed to drop back into its place and anchored. The muscles were brought together with double strands of No. 0 chromic gut, and a small gauze wick placed in the lower angle of the wound. Care was taken that the wick did not come in contact with the ureteropelvic sutures. The patient was then placed in bed. She stood the operation well.

On the second day the dressing was changed. During the first few days following the operation the patient passed only a small quantity

of urine, ranging from 15 to 20 ozs., and it contained some blood. The gauze wick was removed on the third day and there was a small quantity of urine escaped. This diminished from day to day, and disappeared after the first week. The urine became clear and more abundant, being 40 ozs. on the fifth day, and 75 on the seventh day.

The wounds were entirely healed at the end of two weeks. She got up on the 21st day, and shortly afterwards returned to her home. Before she left the hospital a cystoscope examination was made and urine was seen to come freely from both ureteral openings. At the present time she is feeling better than she has done for some years. In this operation I was most ably assisted by Dr. R. Y. Parry and John Parry.

CASE OF CUTANEOUS HORN.

BY

JOHN M. ELDER, B.A., M.D.,
Surgeon to the Montreal General Hospital.

A healthy, well-developed female child was noticed at birth to have springing from the buttock a cutaneous tail, very much resembling the tail of a pig, and curled up upon itself. It was attached slightly to the left of the anus and somewhat posteriorly and would, therefore, be a little to the left of the tip of the coccyx. In the skin over the gluteus muscle in that region there was a diffuse superficial nævus—wine mark—and the tip of this tail-like process was also somewhat nævoid. There was evidently muscular tissue in this tail because upon straightening it out it would curl up upon itself, just as a pig's tail would. In appearance, it was not unlike in size, shape and length, that of a large vermiform appendix. It was apparently composed entirely of skin and subcutaneous muscular tissue, but had no connexion with the coccyx or spinal canal in any way. A rectal examination with the finger showed that it evidently had no connexion either with the anus or any remnants of the post-anal duct.

When the infant was three weeks old and thriving well, the tail being kept wrapped up in cotton wool and preserved from infection as far as possible, it was thought best to excise it. An elliptical incision was made at the base and the growth removed entire; the resulting wound was closed by two or three sutures and covered with collodion to prevent contamination from the anal orifice. There was very little bleeding and no difficulty whatever in doing the operation. The wound healed very kindly, and at present a white linear scar is the only trace left of the child's "caudal appendage." The nævoid condition of the skin on the buttock has steadily improved since the operation, and has now

(three months afterwards) almost completely disappeared, and the baby is a picture of perfect health in every way. No other congenital anomaly could be discovered in the child.

As the excellent article in the *Annals of Surgery* for June, 1906, on this subject had not then been published,* the unusual condition here present puzzled me very much; and upon mentioning it to my friend and *confrère,* Dr. Shepherd, he said I would likely find some reference to the condition in "Anomalies and Curiosities in Medicine" by Gould and Pyle. An Examination of the book proved him to be quite right, and on pp. 222 *et seq.*, I found similar conditions described, and I had no doubt that this was one of those conditions known as "human horns," "which," say the authors, "are anomalous outgrowths from the skin, and are far more frequent than ordinarily supposed." Nearly all the older writers cite examples. It appears that they may occur on any part of the body, although more common upon the head and lower extremities than upon the trunk. Wilson collected reports of 90 cases, 44 females and 39 males; the sex not being mentioned in the remainder. All authors are agreed that these horns are more often found in the female. Of the 90 cases mentioned, 48 were on the head, 4 on the face, 4 on the nose, 11 on the thigh, 3 on the leg and foot, 9 on the trunk and the rest distributed over other parts of the body. Old age is given as a predisposing cause, although there are many congenital cases upon record.

The same authors state that, "instances of cutaneous horns, when seen and reported by the laity, give rise to most amusing exaggerations and descriptions." For example, this description, taken from the lay press in New South Wales: "A child, five weeks old, was born with hair two inches long all over the body, his features were fiendish and his eyes shone like beads beneath his shaggy brows; he had a tail 18 inches long, horns from the skull, a full set of teeth and claw-like hands. He snapped like a dog and crawled on all fours, and refused the natural sustenance of the normal child. The mother almost became an imbecile after the birth of the monster. Country people about Bomballa considered the devil child a punishment for a rebuff which the mother gave to a Jewish pedlar for selling pictures of the crucifixtion. Vexed by his persistence, she said, 'she would sooner have a devil in the house than his pictures.'"

* In the *Annals of Surgery* for November, 1907, appears a report of three cases of Cutaneous Horns by Dr. Roys, of Weihsein, China; all were adult males, natives of China, and none appeared to have the characteristics of the case reported above. Two of these appeared upon the head, and one (multiple) upon the glans penis.

In ancient times horns were symbolic of wisdom and power. Thus Michael Angelo in his famous statue of Moses gives him a pair of horns. These horns are generally solitary, but many cases of multiple formation are known. Stevens mentions a dermal horn on the buttocks as the site of a carcinomatous cicatrix. Cruvielhier saw a Mexican Indian who had a horn four inches long and eight inches round, growing from the left lumbar region. It had been sawed off twice by the patient's son, and was finally extirpated by Faget.

The above reference gives a fair idea of the literature on this subject; and I think the case is one of sufficient interest and rarity to make it well worth reporting.

THE EFFECT OF ANÆSTHESIA ON THE OPSONIC INDEX.

BY

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This investigation was undertaken to determine whether the administration of ether as an anæsthetic lowered the resistance of the body to bacterial invasion.

The fact that in certain cases the giving of an anæsthetic is followed by an attack of pneumonia, and the common observation that the pneumococcus does not attack an individual unless his resistance has been lowered in some way, leads one to think that possibly such diminished resistance in the case of pneumonia might be due to a lowering of the opsonic index or resisting power of the blood.

Whatever the organism may be, for all cases of post-anæsthetic pneumonia are not due to the pneumococcus, or whatever may be the predisposing cause of anæsthetic pneumonia, it seemed of interest to measure the opsonic power to the pneumococcus of those patients to whom anæsthetics were given. It is still an open question what factors in the process of immunity come into play in ordinary pneumococcal infections, and it seemed quite probable that the opsonins played a prominent rôle therein.

To determine the resistance of the body, both before and after anæsthesia, the opsonic index against various organisms was worked out. The organisms used were: (1) Attenuated culture of pneumococcus, (2) staphylococcus pyogenes aureus, (3) coli communior.

The question of phagocytosis of the pneumococcus is not simple. Rosenow has shown that a virulent culture of the pneumococcus is not phagocyted by the white blood cells when treated with the serum of the

blood of a normal individual, nor are they phagocyted when the serum is taken from a patient just past the crisis of pneumonia. An attenuated culture of the pneumococcus, however, is well phagocyted under these conditions. This then goes to prove that the opsonins, or other bodies in the sera are not able to act upon an organism in a state of virulence. I have been able to show that the sera of a patient convalescent from pneumonia was able to sensitize, or, in other words, prepare for phagocytosis, pneumococci which were cultivated from the patient himself. It seems, therefore, that the pneumococcus after the crisis is so altered that it readily becomes phagocyted by the patient's and normal blood. In other words, the pneumococcus had taken on the character of an attenuated culture. This would only go to show that at, and after, the crisis a change not only occurs in the patient's serum, but, also, in the nature of the organism. During this investigation the power of the blood was estimated twice before the anæsthetic was given. If these two corresponded, as they did in every case, we were certain of the normal power of the patient's blood. The blood was again examined just as the patient was recovering from the effects of the anæsthetic, and again the next day, and, as in no case was there a drop in the index, it was not deemed necessary to take further observations.

Twenty-two cases in all were examined; seven to B. coli communior, seven to staphylococcus pyogenes aureus, and eight to the pneumococcus.

In working with the pneumococcus, I found it quite difficult to get a satisfactory emulsion. It required great patience to break up the clumps which, however, was accomplished by the usual method. Incubation for fifteen months is sufficient and phagocytosis is good, but somewhat irregular. The number of organisms in one hundred polymorphonuclear leucocytes was counted in each case, and frequently several slides were examined so that chance of error would be less. With the other organisms used there was no difficulty.

The cases which were examined were of various kinds. The ages varied from nine to sixty-two years, and various conditions of life were represented. The length of time of the anæsthesia in each case varied from half an hour to two hours. It can, therefore, be taken that the cases examined were fairly representative of the usual cases in which anæsthesia is administered. Although the opsonic index of the various patients varied amongst each other, it was found that in every case the opsonic index of the individual patient gave no variation against either the pneumococcus, b. coli communior, or staphylococcus pyogenes aureus. After the anæsthetic, even in those cases in which the anæsthetic was poorly borne and which showed considerable ether intoxication for some

time following, no alteration in the phagocytic power of blood was present.

In this series of twenty-two cases, therefore, the anæsthesia had no effect, as far as the opsonins are concerned, upon the resisting power of the patient to the organisms investigated.

It seems, therefore, that we must attribute the infections, particularly pneumonia, following anæsthesia, to some other cause. These results do not exclude the possibility of a lowered bacterial resistance on the part of the serum. Such a resistance is, of course, not determined by the opsonic index. Or it may be, too, that the mechanical theory of congestion of the lungs plays a considerable part in the post operative pneumonias (excluding aspiration pneumonias). The fact that there was no loss in the resistance of the serum to b. coli is of interest, too, in abdominal surgery. My thanks are due to Dr. Oskar Klotz for assistance and suggestions given during the work.

FIVE YEARS' COURSE.

The five years' course in the study of medicine promises to become general in Canada. It became operative at McGill at the beginning of the present session. Toronto is formally committed to the extension this year, and Laval has the matter under advisement.

When this wise measure was adopted by the two larger institutions fears were expressed lest the smaller colleges would receive an undue number of students. In such an event the general average of professional efficiency throughout the country would be brought to the standard of those colleges.

Happily these fears have proved groundless. It is announced that, after September, 1908, a five years' course will be required at Queen's Medical College with three options for the fifth year. It is also announced from Kingston that a post-graduate course is arranged in public health and sanitary science, and the degree of D.Sc., will be available for medicinal graduates for original research work. With the three largest universities in Canada acting in unison upon this important question it would seem probable that other colleges must adopt a five years' course or remain content with a marked inferiority.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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PSYCHIATRIC HOSPITALS FOR ONTARIO.

Insanity is a disease which invades all classes, and from which no one, be he rich or poor, high or low, can claim exemption. It is a disease that involves to the patient himself, his family, and the community at large a wider range of interests than any other known disorder. Under these circumstances, it is a matter of congratulation that the Province of Ontario has undertaken a reform in the treatment of the insane, the benefit of which, there can be no doubt, will far more than offset the expense entailed in carrying it out. The reform referred to is the establishment of a psychiatric clinic in conjunction with the new general hospital at Toronto.

Though new to America, in Europe such institutions have passed the experimental stage. The hospitals in Berlin and Munich have proved beyond doubt the wisdom of a policy of scientific research work in connection with the treatment of mental diseases. Cognizant of this, the Ontario Government appointed a commission, consisting of the Hon. Dr. Willoughby, Dr. Charles K. Clarke, of Toronto Asylum, and Dr. Edward Ryan, of Rockwood Hospital, Kingston, to study the treatment of the insane abroad. During their tour the commissioners visited the chief centres of population in the various continental countries, and made a thorough study of the methods in vogue in the psychiatric hospitals at Berlin, Tubingen, Giessen, and Munich, the last made famous through

the work of Kraepelin. They also inspected the hospital at Zurich, the Salpetriere at Paris, noted for its early triumphs in psychiatry, Claybury Asylum, where the pathological labors of Dr. Mott and his associates are conducted, and Morningside Asylum, Edinburgh, in connection with which are the laboratories of Dr. Ford Robertson. The report of the commission, with the findings based thereon, has just been made public, and is well worthy of a studious perusal, not only by those directly concerned in the care of the insane, but by the medical profession at large.

Briefly stated, the recommendations contained in the report, which is an elaborate and exhaustive one, are as follows:—

1st. With regard to the chronic insane.

That there should be fewer institutions for this class, and no extension of what is known as the "cottage system." Instead, some of the existing asylums should be enlarged, as necessity arises, by the addition of buildings having a capacity of one hundred and fifty to two hundred beds.

The enlargement of the present staff of physicians, who should be possessed of special knowledge acquired by training in psychiatric hospitals. and an increase in the nursing staff.

The isolation of tuberculous patients.

The proper care and treatment of insane criminals, who should be separately housed in a building specially designed for their custody. In Germany, this plan, it is stated, has been attended with great success. At Munich, criminals, whose sanity is questioned, are detained under observation in the psychiatric hospital, often for weeks, until their true mental status is definitely determined. This mode of procedure has in many instances saved the great cost of lengthy trials, and done much to put a stop to unseemly law-court battles arising from the discreditable and often illegitimate use of the "insanity plea" as a barrier to the punishment of crime.

2nd. In regard to the acute insane.

The establishment, at university centres and in connexion with general hospitals, of psychiatric hospitals, which are the ideal institution for the treatment of all acute forms of insanity.

It is to the last mentioned division of their study that the commissioners, rightly, devote the major portion of their report. The function of such hospitals is two-fold; they are first, for the treatment of disease, and second, for the discovery of means of prevention or relief of disease. The latter may be designated as scientific research. The prevention of insanity, the discovery of the pathological bases of mental disorders, and the cure of what at present are regarded as incurable forms of brain

disease are questions of the gravest moment to the future well-being of mankind, and only in properly equipped psychiatric hospitals, with specially trained staffs and large laboratories, is such research work possible. Take for example the investigations now being made, both in Great Britain and Germany, with regard to general paresis. As stated by the commission, it is not going too far to say that as a result of such scientific study the day will come when "this dread and now incurable disease" will be just as amenable to treatment as is diphtheria.

Up to the present time Canada, though well abreast with the world as regards the custodial care and the ordinary treatment of her insane, has contributed little of a scientific character to the study of insanity. Let us hope with the advance contemplated by Ontario she may be roused from her lethargy, and that the example thus set may be speedily followed by this and the sister provinces. Is it too much to hope, also, that, with the dawn of the new area, the Ontario Government will take yet another step in advance and emancipate itself from the fetters of political thraldom by the establishment of a system of promotion, to the highest positions, among the deserving juniors now in the asylum service? We trust not, because only so can there be looked for the sustained exertion in research work, which is an imperative necessity for the successful solution of the many yet unsolved problems connected with a disease the most dreaded of all human afflictions.

TORONTO GENERAL HOSPITAL RECONSTRUCTION.

What system of formation of clinics shall be followed in the new Toronto General Hospital? Shall there be one head in each department with all the rest subordinate, or shall there be two or three or more parallel services in each of the large departments of medicine and surgery? The former is the commonly found continental method, and the latter is the usual organisation in British hospitals.

This problem is the most serious one at present exciting the interest of the Faculty at Toronto, and at a recent largely-attended meeting, it was fully discussed. The following paragraphs from *The Canadian Practitioner and Review* indicate the ground taken.

"Nearly all the speakers approved of the so-called British methods. An important feature of these methods which they approved of was the system of multiple or parallel services in medicine and surgery. They insisted that these services should be separate, distinct and independent, and the different services should work side by side. It appeared during the discussion that some supposed that the Toronto General Hospital

in the past had been conducted according to quasi-British methods. It was pointed out, however, very distinctly that the past and present conditions in the Toronto General Hospital were not in any sense to be compared with the conditions which existed in Scotland or in England. According to the plan carried out in Edinburgh each surgeon has charge of thirty or forty beds in one or two wards, and controls all those beds, having his own nurses and house surgeons. This was very different from a ward of twenty-five beds in the Toronto General Hospital, where you would find as many as six or eight surgeons attending the patients, with probably as many house surgeons, all of whom gave more or less instruction to the nurses connected with the ward.

"A compromise in the better sense of the term between the two systems was suggested. If there were three services in surgery, the heads of which were doing similar work, one might be called the senior, and also consult with the board about the department of surgery when required."

This conclusion is probably wise, because the British system is the most suited to local conditions: the continental system is probably essentially the better, but is quite inapplicable here. The main factor in the continental system is discipline, and the good results depend not only upon the fact that the head of the department is, in the majority of cases, the most experienced man in it, but also upon the fact that his subordinates know and admit this. He has never done any other thing, and has, all his life, worked with a view to attaining a fixed place in the pedagogy of medicine; all his juniors in the same hospital or clinic, have entered it after him, and have been accustomed at all times to look upon him as their undoubted senior. If he come from a clinic in another city, he assumes at once the place in the new clinic corresponding to the one he left. In Canada things are different: pedagogy in medicine is but an incident, and where, here and there, a man has given much thought and attention to teaching and clinical organisation, his fellow man who has been as many years in practice refuses to accord him the superiority he deserves, and our discipline does not demand obedience of the second to the first.

Neither system is perfect: the continental probably has the fewer faults. But essential to it are two things which are hard to find—the overwhelming superiority of the senior, and the unquestioning obedience of the juniors. With a large faculty already in existence, it is not possible to make one appointment in each department, which will be unquestioned; an appointment which is dissented from, cannot have the cordial support of the disappointed ones, and therefore had better not be made.

Anyone who is conversant with the continental system knows that it is much less perfect than it looks: they, also, have their little bickerings and even their abuses, where the power vested in one man, who is human, may be wrongly exerted to the exclusion or detriment of worthy subordinates. On the other hand, with the British system one may see such inequality in the work done by two parallel services, that one is instinctively moved to wish that the poorer might be put under the supervision of the head of the better one, and the quality of the work in the department thereby at once raised. With so many arguments for and against, a theoretical decision is difficult: therefore the Faculty at Toronto probably do well to adjust their decision to the existing circumstances rather than to hand out a judgment on theoretical grounds.

THE INCREASE OF MEDICAL FEES.

Last month we alluded to the movement undertaken at London, Ontario, for the increase of medical fees: since that time, Ottawa, Cobourg, and Lunenburg-Queen's medical societies have taken the matter up and indicated their intention of adhering to a scale of raised fees. The lodge insurance examination, and examinations for sick-benefits societies have come in for their share of attention, and it seems to be universally thought that it is not humanly possible for a physician to do good work for a society at half-a-dollar per examination; and that the very cheap orders are very apt to get very cheap work in return for very cheap rates. We notice, in this regard, that the official organ of the Ancient Order of Foresters takes sensible grounds on this subject, aiming at the raising of the scale of examination for fratenal orders in general, and at accomplishing this by raising the scale of pay if that be judged to be the correct way to do it.

It seems to be pretty widely impressed upon the profession that if the fees are raised it will not be premature; for years we have seen certain skilled laborers earning more than many physicians who work harder: and this is not right. With the increased cost of medical education, the result is that before very long even country practice will react to this.

A career of great promise has been cut short by the untimely death of Dr. A. Mactier Pirrie. The son of the late Mr. Alexander Pirrie, C.E., he was born on October 2nd, 1882. He obtained his B.Sc. with honours in anthropology at Edinburgh University in 1904, and qualified as M.B., Ch.B., in 1904. He obtained the Carnegie Research Fellowship

in anthropology and was appointed anthropologist to the Welcome Research Laboratories at the Gordon Memorial College, Khartoum. He went out to the Sudan in the autumn of 1906. Under the direction of Dr. Andrew Balfour, the Director of the Laboratories, Dr. Pirrie made his first expedition up the Nile to the Southern limits of the Sudan and penetrated to remote parts of the Bahr-el-Chazal. His second expedition took him to the borders of Abyssinia. On both occasions he passed through some of the most pestilential regions of Africa in connection with certain anthropological and physiological researches, appertaining to tropical diseases, upon which the Laboratories are engaged. Unfortunately he contracted tropical fever (kala-azar) and was so prostrated as to be compelled to return to England, leaving Khartoum on June 17th last. He rallied from the effects of the fever from time to time, but was compelled to enter Chalmers' Hospital, Edinburgh, in October. His death took place on November 12th.

MONTREAL MATERNITY HOSPITAL.

The following is an abstract of the sixty-third annual report of the Montreal Maternity for the year ending September 30th, 1907.

The work of the Maternity during the past year has shown an increase of, roughly, 50 per cent. over the previous year, and the results have been satisfactory, although the maternal death rate ($1\frac{1}{2}$ per cent.) has been comparatively high. Eight of the nine deaths occurred in patients sent in consultation; as autopsy was permitted in all cases, the responsibility for the death could be placed where it really belonged.

The fœtal mortality has been high, but not unusually so. Here too, with a few exceptions, autopsies have shed much light on the true causes of the fatal issue, and Dr. Klotz, of the Royal Victoria Hospital, has prepared post-mortem records in each instance. While the number of infants born at term that have died in the hospital has not been large, there is no doubt even better results could have been obtained had more space been available for the accommodation of infants.

The number of admissions has been as follows:—Remaining over in the hospital, October 1st, 1906, 30. Admitted during the year, 570. Total, 600. This includes 26 patients remaining in the hospital October 1st, 1907.

The total number of hospital days has been for adults, 12,368; for infants, 7,240, and the average number of patients per day,—adults, 34; infants, 20. The average stay of each patient in hospital was 20.9 days. Of the patients in the hospital before confinement the average stay was 12.9 days, while after confinement it was 15.6 days.

Of the 574 completed cases there were, primiparæ, 299 and multiparæ, 275. Their status was, single, 134; married, 436; widowed, 4; There were Protestants, 340; Catholics, 172, and Hebrews, 62.

The private patients numbered 128, the public 446, the number of private patients being double that of last year. Attention is specially directed to the fact that the increase has been chiefly in the Protestant and Hebrew patients, the number of Catholics remaining very much as it was last year.

The birth places of the 574 patients were as follows:—Canada, 259; England, 137; Russia, 48; United States of America, 43; Ireland, 29; Scotland, 28; Austria, 11, and others in smaller numbers.

The general results were as follows:—Maternal:—Discharged in good condition, 560, transferred to other hospitals, 5; remaining in hospital, October 1st, 26; died (see under "Maternal Deaths"), 9.

Infantile:—Total adult admissions, 600; twin pregnancies, 6; admitted post-partum, discharged ante-partum, etc., 69. In hospital October 1st, 26.

Of 600 patients, 69 were admitted after or before confinement, but there were 511 births, from 600 patients entered. Of these, there were dead born, 30, still born, 8; died in hospital, 34, a total of 72, while those discharged in good condition numbered 439.

Of the 34 that died in the hospital 17 were premature infants of poor vitality. The other deaths in the hospital were from the following causes:—Hæmophilia, 2; broncho-pneumonia, 2; congenital malformation, 2; syphilis, 2; abdominal hæmorrhage, 2; septic arthritis, 1; tuberculosis, 1; gastro-enteritis, 1; umbilical infection, 1; unknown, 3.

Those classed as still births, (form alive but impossible to resuscitate) were as follows:—Under 7½ months, 4; tight coil of cord, 1; monstrosity, 1; forceps injury, 1; unknown, 1.

Of those born dead, the following conditions were shown:—Prolapsed cord, 5; syphilis, 2; maternal nephritis, 5; maternal toxæmia, 2; maternal cardiac disease, 2; maternal eclampsia, 3; maternal typhoid, 1; anencephalus, 2; hydrocephalus, 1; placenta prævia, 1; internal hæmorrhage, 1; breech extraction, 1; forceps injury, 1; unknown, 3.

Classification of pelves:—Normal, 382; contracted, 65; generally contracted, 36; generally contracted rachitic, 5; flat and rachitic, 5; simple flat, 10; contracted outlet, 9; unmeasured pelves, private patients, etc., 127. Total, 574.

Special attention has been paid to the careful measuring of the pelves of all public patients and many interesting observations have been made and recorded. The number of pelves classed as contracted, according to

the usually accepted standard has not been so large, but the number contracted at the outlet has been unusually so and while but nine have shown this contraction in a marked degree, a very large number have possessed this deformity in a sufficient degree to seriously affect the course of labor. Another observation of interest has been that the course of labor in two patients with the same pelvic contraction may vary widely, as in the one instance where a child of 14 gave birth to an infant spontaneously, while in a woman of 28, Cæsarean section was necessary to obtain a living child. In both of these the pelvis was flat, with a diagonal conjugate of 10.2 cm.

Complications of Pregnancy, etc.—The number of abortions (25) shows a marked increase over last year. This is probably due to the fact, that we are now able to admit these cases, whereas in the old Maternity they could not be admitted on account of lack of room. In cases of threatened abortion marked success has been obtained by keeping the patient at rest and administering sedatives. In two cases of habitual abortion one was carried to term by the administration of large quantities of potassium iodide.

2. Cardiac complications have been interesting and instructive; when seen in time there was no difficulty in carrying the patient successfully through pregnancy and labor. Heart stimulants have been given, often in large quantities, without any apparent effect upon the pregnancy, and in a number of cases the patients were confined by operative procedures without the use of a general anæsthesia. In such cases hypodermics of morphia were usually given and the patients showed no ill effect from the operation.

3. A most unusual and interesting case of cardiac embolism occurring on the tenth day after accouchement forcé for placenta prævia lateralis, has already been reported before the Montreal Medical Society.

4. There has been a number of pregnancies after abdominal operations, the most interesting being two after nephrectomy. In neither of these cases was there evidence of renal insufficiency.

5. The treatment of eclampsia has been more active than heretofore, and, particularly where the child was viable attempts were made to empty the uterus as soon as compatible with the safety of the mother. Unfortunately a number of cases were sent in from outside with the child already dead in utero. In addition to the emptying of the uterus great stress has been laid upon the administration of large quantities of fluid by mouth and by the rectum, and in certain cases by infusion and transfusion; bowels have usually opened freely after large doses of magnesium sulphate. In those cases of eclampsia where the kidneys were

but slightly affected the patient's general condition improved in direct proportion to the diuresis obtained. Even in cases with considerable renal disturbance beneficial results were obtained so long as care was taken to see that the output of urine equalled or exceeded the quantity of fluid given.

6. A number of cases of chronic nephritis have been treated with more or less success. In a number of instances these cases showed marked improvement after delivery, but later in the puerperium, usually about the 7th day, became markedly worse—two of them died.

7. Probably the most interesting of all the complications of pregnancy has been tuberculosis. Five tuberculous patients have been confined and all have done remarkably well; the children were placed upon artificial feeding, and all born at term have survived.

Technique.—The technique in the hospital has been modified very little during the past year, except that the use of rubber gloves has become much more general. No operation on any of the public patients has been performed without gloves being used.

Douches have been used even less than last year; a post-partum douche was given in but a single instance while ante-partum douches were used only where there was marked rigidity of the cervix. In cases of slow involution, however, hot douches given from the 10th to the 14th day have had a marked beneficial effect.

Induction of labor.—For the induction of labor the use of the silk bougie has been practically abandoned and large rubber catheters (27 F.) have been used. These are more readily sterilized, and are also cheaper; while their insertion is perhaps slightly more difficult, there is less danger of rupture of the membranes or perforation of the uterus. The operation was performed eighteen times and its repetition was necessary but once, the labor invariably coming on within four to eighteen hours. The time of onset would seem to vary directly with the amount of irritation set up inside the uterus and the care taken in the insertion of the bougie.

Craniotomy.—Craniotomy was performed three times, and in each instance for the same condition:—Generally contracted pelvis with prolapse of the umbilical cord. In only one of these cases could the child have been saved; this was one seen outside the hospital, and at that time the child was alive. There was so much delay in bringing her to the hospital that the child had perished in the interval.

Pubiotomy.—Pubiotomy was done once on account of marked narrowing of the pelvic outlet, the patient having expressed a strong desire to have a living child. As the attempt to deliver by means of forceps were unsuccessful, version and rapid extraction were done to save the child.

The operation was complicated by an excessive tear of the perineum, and also one of the vagina which communicated directly with the pubic wound. Obstruction developed at the site of the pubic wound probably due to infection from the rectum, at the time of delivery. In this case the child was saved but the mother died.

In this type of pelvis, pubiotomy with version, seems an undesirable operation, for if, as in the majority of cases, the arms are swung above the head it is impossible to reduce them without extensive laceration of the vagina which is practically sawn through by the sharp edge of the pubic bone during the manipulation to free the arm on the side of the wound.

Cæsarean Section.—Cæsarean section was performed twice. The first patient had a simple flat pelvis, D.C. 9.5. with a child that she had carried eleven lunar months: this operation was eminently successful both for the mother and for the child.

The second was a private patient with chronic nephritis and such œdema of the vulva and vagina that delivery by ordinary means was absolutely impossible. In this instance too, the operation of itself was successful as the child was born alive and the mother's condition was much improved. Unfortunately uræmic convulsions supervened and the patient died of nephritis on the 14th day.

Complete tears of the perineum.—Complete tears of the perineum have occurred nine times, one of these cases being in a private ward. The complication was present once after pubiotomy; twice after version and extraction; and six times after the application of forceps. Immediate suture gave excellent results in all but two cases, one the private patient referred to, and the second a case in which the sutures were placed badly and infection from the rectum resulted. The routine has been first to bring the mucosa of the rectum together with fine cat gut, then to unite the ends of the torn sphincter by means of No. 2 cat gut, and after placing deep sutures of silk worm gut to bring the skin of the perineum together with a subcutaneous catgut suture.

Episiotomy.—Median episiotomy has been done in a number of cases, particularly where a narrow sub-pubic angle threw the head far back on the perineum. Delivery in these cases can only be accomplished with very extensive laceration, and indeed all cases of complete tear of the perineum were due to this condition. If, however, a straight cut is made when the perineum is distended there is much less danger of involving the sphincter, and the wound is easy to repair.

Hæmorrhage.—Hæmorrhage has not occurred as a serious complication in any of the labors. True, a number of patients have lost a large

quantity of blood, but this was ascertained by collecting and measuring the amount lost, rather than by any change in the patient's condition. In a number of cases the loss was 1,200 c.c., and in one instance 2,300 c.c., accompanied by no systemic disturbance, while the loss of much smaller amounts in other cases markedly affected the patient's pulse and general condition.

Ophthalmia.—In cases of severe ophthalmia we have been able, thanks to the courtesy of the visiting ophthalmologist, to obtain much more satisfactory results than heretofore, as a careful bacteriological examination of the secretion has shown that a number formerly suspected of being gonorrhœal were due to other organisms and responded readily to varying forms of treatment.

Outdoor.—1,047 visits were made from the outdoor department; 101 women were confined; 98 of the children lived.

The usual hospital routine has been modified and made even more simple for the conduct of these outdoor cases. When the patient is registered she is given a card which is sent to the hospital when the doctor is needed.

The patient is guaranteed attendance at confinement by a qualified physician and for ten days is visited by a nurse from the hospital. On the 10th day the doctor from the hospital is required to examine the patient and to see that she is in a fit condition to be discharged.

At the commencement of the service we had three cases with temperatures reaching 102°, but since the adoption of the same standard of hand sterilization as in use in the hospital and the uniform use of rubber gloves, we have had but one temperature above 101° in the last 80 cases confined.

Reviews and Notices of Books.

PATHOLOGISCHE PHYSIOLOGIE, Ein Lehrbuch für Studierende und Ærzte, von Rudolf Krehl. 5th Edition, 1907. Published by F. C. W. Vogel, Leipzig, Germany.

The present is the fifth edition of this work which has been revised and enlarged. The preceding editions of this volume were received with such approbation by the profession that an English translation of the fourth edition was made by Hewlett.

As is so frequently the case in all literature, the author's meaning and teaching can be obtained only by reading the original. Those familiar with the author and his teachings can follow him best by reading his own words and in this book the context is particularly easy to follow.

Krehl has endeavoured to apply the truths obtained at the post mortem table to the clinical findings at the bedside. The time has come when we have accumulated so many facts from the pathological examinations that these must now be collected together and made to serve a purpose in active practice. In other words, the "why and wherefore" of each sign, symptom and disease should, if possible, be placed upon a basis of experience and fact.

The author points out the difficulty that the pathologist has encountered in distinguishing the normal from the abnormal processes, as each species of animal, and even each individual, has a different normal standard. An arbitrary normal standard can, however, be established to admit of sufficient elasticity to cover the processes occurring in healthy races.

The first two hundred pages of this volume are devoted to a discussion of the circulation and the blood. The minute details of the pathological changes occurring in the muscle, valves or vessels is described at length. One can frequently read page after page of pure pathology and then be brought face to face with the clinical significance of the changes described.

The subject of the various forms of anæmias and leukemias is very well taken up, and, in the author's full description of the blood changes, it becomes apparent how closely the pathological must be linked to the clinical study of the disease. A very good summary of the processes of immunity which have been associated with Ehrlich's side chain one, and also opsonins, are discussed.

In all, the book contains ten chapters. The remaining ones deal with the respiratory, digestive, nervous and urinary systems, besides special attention being given to the subject of metabolism and fever.

Throughout the whole book we have found very interesting material, and many facts of unusual interest are presented in a very lucid style. It is a book that we could recommend in the "Grenzgebiete" of Pathology and Medicine, and would thus find a useful place on the shelves of both the practitioner and the pathologist.

PHYSICAL CHEMISTRY IN THE SERVICE OF MEDICINE. By Dr. Wolfgang Pauli, Vienna, Translated by Dr. Martin H. Fischer, Oakland, California. New York, John Wiley and Sons; London, Chapman and Hall, Limited.

The effect of recent advances in the science of physics and biological chemistry is already beginning to be felt in the realm of practical medicine. In pharmacology and therapeutics especially is this evident. The

study of the action of ions and of the relation of the physico-chemical properties of a substance to its therapeutic action has been fruitful of practical results. Dr. Pauli's lectures, as translated by Dr. Fischer, are full of interest and not too technical to be understood by the practising physician. A perusal of this little book should be of benefit to the general practitioner who wishes to keep himself informed of all that is new in medicine.

J. W. S.

Surgical Applied Anatomy. By Sir Frederick Treves, Bart., F.R.C.S. Fifth Edition. Revised by Arthur Keith, M.D., F.R.C.S. Illustrated. Philadelphia: Lea Brothers & Co.

The reappearance of this book in its fifth edition recalls the year 1883, when it first appeared. Men who are now old will remember with pleasure their reading of it twenty-five years ago, when Mr. Treves, as he then was, taught anatomy in the London Hospital. It is a real book in the sense that the personality of the writer is in it. There is much vivid illustration, and incident, many pointed phrases, humour even. Treves "Applied Anatomy" will always be a classic, in the way that Quain's "Anatomy" is. The student of to-day is likely to derive from it the pleasure and profit which his predecessors did.

Handbook of Cutaneous Therapeutics, including Sections on the X-Ray, High-Frequency Current and the Minor Surgery of the Skin. For the use of General Practitioners. By W. A. Hardaway, M.D., LL.D., Professor of Diseases of the Skin and Syphilis in Washington University, St. Louis, and Joseph Grindon, Ph.B., M.D., Professor of Clinical Dermatology and Syphilis in Washington University, St. Louis. Lea Brothers & Co,. Philadelphia and New York, 1907.

A book of 600 pages entirely devoted to the treatment of skin diseases is a new departure in English medical literature. Descriptions of the various diseases are given in the briefest possible space and the differential diagnosis is almost entirely omitted. On the other hand the treatment is fully and ably described, not alone from the medicinal point of view, but also in respect to what the authors call the "physical and mechanical" treatment. The writers while stating fully the opinions of other dermatologists on debatable points do not hesitate to express their own convictions regarding their value, a feature which we think adds much to the value of the work to the reader. The more recent methods, opsonic, liquid air, Bier's, X-ray, radium, etc., which have been found of use in a certain class of dermatoses, have been described

in Part II. under General Treatment and Methods with a fulness of detail which leaves little to be desired.

When one learns from the preface that a work such as this is intended to aid the general physician and not the specialist, while in no way wishing to detract from its value as a treatise on cutaneous therapeutics, one cannot but question its suitability for this purpose. The great difficulty which confronts the physician of little experience in dermatology is that of diagnosis. What will be his state after deciding to call a case one of eczema, for example, when he finds on turning up the treatment that he has over one hundred prescriptions from which to select?

A Manual of the Practice of Medicine. By A. A. Stevens, A.M., M.D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania. *Eighth Edition, Revised.* 12mo of 558 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Flexible Leather, $2.50 net. Canadian agents, J. A. Carveth & Co., Ltd.

Eight times we have mentioned this book since 1892, and always with praise. It is a concise and accurate statement of the essential facts in the practice of medicine. The volume contains 558 pages. It is easy to hold, easy to read, and is not disappointing in respect of the treatment of disease.

Transactions of the American Surgical Association, Vol. XXV. Edited by Richard H. Harte, M.D., Recorder for the Association, 1907.

This volume contains 37 important papers upon surgical subjects by the leading surgeons in the United States. There are 14 papers upon Carcinoma of the Breast, of which nine deal specially with "end-results." The amount of work and the method of doing it indicated in this volume is entirely creditable to American surgery.

Transactions of the American Medico-Psychological Association, Vol. XIII. Secretary: Chas. N. Pilgrim, M.D., Poughkeepsie, New York.

The present volume contains the report of the proceedings of the meeting held in Boston, June 12th-15th, 1906. It contains nearly 600 pages, every one of which is precious to those who attended the meeting. The book is also valuable to physicians who wish to inform themselves of what is being done by those who have to do with the care of the insane.

A Treatise on Diseases of the Skin. For the use of advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Fifth Edition, Revised. Octavo 1,150 pages, 267 text-illustrations, and 34 full-page coloured and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $6.00 net; Half Morocco, $7.50 net.

The fact that five editions of this work have been called for in so short a time is sufficient evidence of its great value. It is admitted now by most that Dr. Stelwagon has written the best book on Diseases of the skin which has been produced on this side of the Atlantic. The language is clear and uninvolved, the illustrations are unsurpassed, the substance is practical and comprehensive, and the classification is simple and scientific. It is an ideal work for those engaged in general practice and of great value to the specialist. This edition has been much improved by the addition of considerable new matter and "the elision of unnecessary and obsolete material."

The additions and changes have been chiefly in the line of tropical diseases but "dhobie itch," uncinarial dermatitis, tinea imbricata, frambesia, Oriental sore, etc., leukemic eruptions are for the first time described. Many new illustrations are added to the text and two new plates. We can heartily recommend this work to all who desire to acquire an accurate knowledge of Skin Diseases and to have the source of that knowledge presented in an attractive form.

The Operating Room and the Patient. Russell S. Fowler, M.D., Prof. of Surgery, Brooklyn Post-Graduate Medical School: Second Edition, Enlarged and Revised. W.B. Saunders & Co., 1907, $2.00.

From the preface to this, the second edition, we learn that some chapters, at least, are designed to meet the needs of the general practitioner. We must confess, however, that in first looking over its pages we thought it far removed from the realm of the general practitioner, and most technically surgical.

The book begins with a description of what the operating room should be, its structure, arrangements, furniture, appliances and sterilization, its nurses including their training and duties, in fact something on everything connected with the operating suite of a large hospital. Many formulæ given here as to the preparation of catgut gauzes etc., are sure to prove useful.

After the operating room comes the anæsthetic room and finally the patient with his care before and after operation, with considerations as to the variety and the care of operative wounds. In the last pages numerous lists of the instruments required in various operative procedures are given at length.

The *raison d'être* is evidently to supply surgeons with a system of operating room technique, which has been tested by practice and which may be adopted or modified. It will find its chief usefulness in aiding recent graduates and those commencing surgical practise, who have never had the advantage of a hospital training, and in giving house surgeons an interpretation of the many procedures with which all large hospitals abound. The older surgeon may adopt many useful hints. Though he will also find many details with which he may not be quite in accord nevertheless he will be ready to acknowledge a finished technique in all instances.

The chapter on anæsthetics is good, only we miss mention of the newer local drugs, stovain, norokain, etc., also of ethylchloride anæsthesia. Only the author's method of giving ether is given.

In the pages devoted to occurrences following operation the remarks on parotitis are interesting (7 cases in several thousand laparotomies). The best chapter is that dealing with the after care of the patient.

The chapters on wound dressing are sound and thoroughly modern in their limited use of irrigation and antiseptics. While we cannot agree with such methods as the use of moist dressing in skin grafting and the use of large intravenous injections of saline at a high temperature, yet we are aware that the author will find plenty of support in these matters.

In short, and in no trifling spirit do we say it, "for those who need this sort of thing, this is the sort of thing they need," and we know no book in which the detail of operating room and surgical ward is more thoroughly and carefully placed before the reader.

The book is well-printed and bound, of some 200 pages with an additional 50 pages devoted to the testing of instruments necessary to various operations.

R. P. C.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Lea Brothers & Company, Philadelphia, December 1st, 1907. Six dollars per annum.

The contributors to this Number are J. Dutton Steele, M.D.; John Rose Bradford, M.D.; Joseph C. Bloodgood, M.D.; William T. Belfield, M.D.; and H. R. M. Landis, M.D. The contents are: "Diseases of the Digestive Tract, the Liver, and Pancreas"; "Diseases of the

Kidneys"; "Surgery of the Extremities, Fractures, Dislocations, Tumours, Joints, Shock, Anæsthesia, and Infections"; "Genito-urinary Diseases"; and "Practical Therapeutic Referendum." An index for the year completes the volume, which contains 336 pages. These subjects are all of pressing interest, and they are competently dealt with. We note the reference to Adami's "Inflammation and Introduction to the Study of Pathology," which, Dr. Bloodgood states, "should be read by every practitioner." The same remark is applicable to "Progressive Medicine."

THE PANCREAS, ITS SURGERY AND PATHOLOGY. By A. W. MAYO ROBSON, D.Sc. (Leeds), F.R.C.S. (Eng.), London, and P. J. CAMMIDGE, M.B. (Lond.), D.P.H. (Camb.), London. Illustrated Philadelphia and London. W. B. SAUNDERS COMPANY, 1907. J. A. CARVETH & Co., Toronto, Ont., Agents for Canada. Price $5.00.

Few men have contributed more to our knowledge of the diseases of the pancreas than the editor of the volume. Few men have had larger experience in the surgery of the pancreas, and few men can speak more authoritatively on the different pathological lesions, involving the pancreas and their treatment. The present volume of over 500 pages, gives a brief history of the development of our knowledge, and presents to the reader, in a clear and concise way, the present views regarding the role played by this viscus in health and disease.

The first five chapters deal with comparative anatomy and embryology, anatomical anomalies and surgical anatomy. These chapters are clearly written, well illustrated, and place before the reader a knowledge of the results of laboratory work carried out by the different workers in different countries. They give infomation regarding the important and complex part that the pancreas plays in the physiology of the body which enables him to follow more clearly the varied deviations from the normal described in the following pages. The points brought out are by no means only of classical interest. Many of them have a practical bearing in the explanation of clinical phenomena observed from time to time. For example, the fact that in sixty-two per cent of cases, the common bile duct is so surrounded by the pancreas that it may be compressed from diseases of the pancreas itself, the outflow of bile being prevented, and well-marked jaundice a result.

A rare anomaly of much surgical interest is found in cases where the head of a well-developed gland embraces as much as one-third of

the circumference of a second part of the duodenum, and in still rarer cases, where the whole circumference of the bowel is enclosed in a ring of pancreatic tissue.

It is clearly shown that the pancreas plays a much more important role in the development of the body and particularly in digestion, than has hitherto been assigned to it. In fact, the pancreas is coming to be considered the digestive organ of the body par excellence. It acts actively on the three great classes of foods—fats, proteids and carbohydrates. This is emphasized in pancreatic infantilism, where the lack of development appears to be the result of insufficient pancreatic secretion for the metabolic needs of the body.

Then follow chapters on histology, physiology, pathology, fat necrosis, chemical pathology and diabetes; all written with a fullness of knowledge and clearness of expression that add greatly to their interest and value. The succeeding chapters deal with the general symptomatology and diagnosis, inflammatory changes and neoplasms. The close similarity in the symptoms of cancer and chronic pnacreatitis in the head of the gland is pointed out. Many cases of the latter have, in the past, been allowed to die unoperated upon under the mistaken idea that they were suffering from cancer, and the importance of a differential diagnosis is only now beginning to be appreciated. The authors take up this subject very fully and give in detail the tests which they have found useful in differentiating the one condition from the other. To the end of each chapter is appended a list of the more important papers and publications bearing on the subject therein discussed. The work is one of scientific interest and practical value.

G.E.A.

Diseases of Children for Nurses. By Robert S. McCombs, M.D., Children's Hospital, Philadelphia. W. B. Saunders & Co. Two dollars. 431 pages.

Hospital Training-School Methods and the Head Nurse. By Charlotte A. Aikens, Associate Editor of the *National Hospital Record,* Philadelphia. W. B. Saunders & Co.

Reference Handbook for Nurses. By W. Reynolds Wilson, Physician to the Philadelphia Lying-in Charity. W. B. Saunders & Co., 1907.

We have chosen to group together these three books, all received in December, from J. A. Carveth & Co., the Canadian Agents of W. B. Saunders & Co., to emphasise the increasing volume of literature which is becoming available for nurses. Dr. McCombs book is a con-

siderable volume of over 400 pages, and contains much sound knowledge well arranged and presented. It is quite within the compass of the intelligent nurse. The observations of Miss Aikens upon hospital training-school methods are extremely sensible and might well be read by all physicians. Dr. Wilson's Reference Handbook contains in small compass all which it is essential for a nurse to know.

Medical News.

CANADIAN HOSPITAL ASSOCIATION.

At a meeting of the Executive of the Canadian Hospital Association, it was decided to hold the next meeting of the Association in Toronto in the Parliament Building, on Easter Monday and the following Tuesday, 1908. A reception will be given by the President, Miss. Louisa Brent in the new Nurses' Home of the Children's Hospital. Dr. S. S. Goldwater, Superintendent of the Mount Sinai Hospital, New York, and President of the American Hospital Association; Dr. C. K. Clarke, Superintendent of the Toronto Hospital for Insane; Dr. T. Sutton, editor of the *National Hospital Record,* Detroit; Dr. W. J. Dobbie, Superintendent of the Toronto Free Hospital for Consumptives, and Henry M. Hurd, Superintendent of the Johns Hopkins Hospital, have promised to give papers. A number of Canadian superintendents have also been invited to contribute to the programme

ROYAL VICTORIA HOSPITAL.

Monthly report for December:—Patients admitted, 306; patients discharged, 270; patients died, 18. Medical, 99; surgical, 120; ophthalmological, 23; gynæcological, 38; laryngological, 26. Outdoor department:—Medical, 748; surgical, 664; eye and ear, 283; women's diseases, 82; nose and throat, 338; total, 2,115. Number of ambulance calls, 74.

The Nichols Hospital in Peterborough has received a further grant from the estate of the late Charlotte Nichols which gives it a total endowment fund of two hundred thousand dollars. This sum with the income from patients and the grant from the Government, will make the institution self-sustaining.

The executive committee for Ontario of the British Medical Association has presented to Dr. R. A. Reeve a painting of himself done by

Robert Harris. Dr. Reeve was president at the meeting of the Association in Toronto in 1906.

The Ottawa Board of Health has refused permission for the erection of the hospital for tuberculosis in Rideauville. The committee in charge of the hospital have decided not to appeal from this decision, in deference to public opinion, and owing to the proximity of houses to the property.

Epidemics of smallpox are reported from certain districts of Ontario, notably Berlin and Goderich. In the latter place the churches, as well as the schools, have been closed. The disease is of a mild type. Scarlet fever is also very prevalent in the province, appearing, for the most part, in an unusually mild form.

F. D. Corbett, a merchant of Halifax, presented a cheque for ten thousand dollars to the committee having in charge the raising of a fund for a children's hospital in Halifax.

Dr. Forrester, of Mimico Asylum, has been appointed assistant medical superintendent at London Asylum in succession to the late Dr. Buchan.

A new free dispensary has been started in Winnipeg, its maintenance being provided for by local physicians, fifteen in number.

A medical association for the County of Waterloo, Ontario, was organized recently. Dr. Warland, of Galt, was elected president.

Dr. William Bayard of St. John died December 17th, 1907 at the age of 94 years. Dr. Bayard graduated from Edinburgh University in 1837, and for seventy years practised medicine in St. John. He was the founder of the St. John General Public Hospital, was chairman of the Hospital Commission, and at various times had been chairman of the New Brunswick Medical Society, president of the Council of Physicians and Surgeons, was 28 years coroner, chairman of the provincial Board of Health, and in 1895 president of the Canadian Medical Society. In August last, on the 70th anniversary of Dr. Bayard's

graduation, the Faculty of Edinburgh University conferred upon him the honorary degree of LL.D. *in absentia,* stating in the letter received, the belief that Dr. Bayard was then the oldest living graduate of the university.

Dr. John A. Howitt, of Hespeler, Ont., died suddenly in Saskatchewan.

Dr. W. S. McInnes died in Brandon on November 4th, after an operation for appendicitis.

Dr. J. W. Tripp, of Simcoe, Ont., died November 25th, in his 70th year.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

"Yeasts and the Oidial Mould Forms in Relation to Disease in Man."

Busse in 1894 described a case of generalized yeast infection, which ended fatally, in a woman, where the gross lesions greatly resembled those of tuberculosis. Gilchrist, in 1894, also described a hitherto unknown lesion of the skin, but only recognized the causative agent to be a species of yeast after the publication of Busse's article, and he published it as such in 1896. At first he classed the infecting organism in the oidia, but later termed it a blastomycete. Wernicke, in 1892, described a case of generalized infection and gave a doubtful diagnosis of mycosis fungoides. Rixford and Gilchrist, in 1896, described two similar cases and concluded that the infecting organisms were true sporozoa and gave the name "Coccidioides Immitis Pyogenes" to the disease. Ophuels, in 1900, describing two similar cases from the San Joaquin valley, recognized the cause to be a mould or yeast and gave to the disease the name "Coccidioidal Granuloma."

We see, therefore, that these infections as reported, naturally fall into two classes, (I) the dermatitides, and (II) The generalized infections.

In (I) the disease commences as a papule or pimple and later many similar lesions make their appearance around this, forming an area with a rough surface almost papillomatous in appearance and showing many small abscesses and marked incrustation on surface. There may

be a loss of tissue, forming a shallow ulcer. The lesion may heal spontaneously, or it may heal at the one side while extending at the other, and similar lesions may develop in other skin areas. It does not affect the general health of the patient and in only one case out of the sixty or seventy reported cases has the condition resulted in a generalized infection. Iodides are always a specific for this disease.

Histologically the tissue shows hypertrophy of the epithelium, many small dermal abscesses, that contain the organisms, and numerous giant-cells.

In class (II) the disease usually commences with a feeling of malaise and with slight fever, until at the end of the second week abscesses make their appearance usually at first in the superficial parts. Moderate fever persists, new abscesses develop, and the disease ends fatally in about a year.

Iodides are of no benefit in this form. Macroscopically, the lesions resemble those of a rather acute tuberculosis, and histologically the tissue in the lesion may vary from that resembling a giant-celled sarcoma to a mass of the organism held in a very fine fibrous stroma. Busse's and Curtis' cases were similar to the above save that there the history of the onset was not obtainable.

We now find that corresponding to the different clinical picture in these two classes there are certain differences in the infecting organisms.

In the dermatitides the organism appears in the tissues as a round or oval body, 10 to 20 micromillimeters in diameter. It usually possesses a double-contoured capsule and is highly refractile. There is often a clear zone between the capsule and the cell protoplasm and there may be a second or adventitious capsule (brought out by treating with one to three per cent. acetic acid) causing the organism to show in tissues many concentric rings. Budding forms are often present but mycelia are never seen. The protoplasm is granular, often vacuolated and a nucleus can not be made out.

In cultures these organisms form aerial hyphæ which show lateral or terminal conidia or spore formation, and these spores may multiply by simple budding (just as do the true yeasts) or by sending out a hypha which later becomes septate and forms terminal spores as before. It does not ferment sugars and the so-called mould-skin forms on fluid media. These characteristics place the organisms among the oidia rather than among the true yeasts, and so the disease is now usually termed "Oidiomycosis."

In coccidioidal granuloma the organism has a similar appearance in the tissues save that it multiplies mainly by the formation of endo-spores

and to a much less degree by budding. It is also larger in size, the diameter reaching 30 micromillimeters. In cultures it forms septate hyphæ with terminal conidia and these conidia never directly give rise to hyphæ but multiply by endo-sporulation alone, thus showing marked resemblance to the yeasts. An adventitious capsule is occasionally present. This organism is also classed among the oidia and is termed the "Oidium Coccidioides."

In Busse's, in Curtis' and in Turck's cases the organism differed considerably from the above. In the tissues it showed as a double contoured body about 8 micromillimeters in diameter, often possessing an adventitious capsule. It reproduces by budding only. In cultures it fermented sugars to alcohol and did not form mould-skin on fluid media. It reproduced by budding or by the formation of 4 to 8 endogeneous spores. Short non-septate and non-conidia-bearing hyphæ were occasionally found. These characteristics caused the organism to be considered a true yeast or blastomycete and the disease was named "Saccharomycosis Hominis."

Blanchard's organisms correspond to the above type, but Ormsby and Miller's resemble more closely those of coccidioidal granuloma.

When searching for the organism all observers are agreed that the best and surest method is by examination of the fresh pus or of the teased or sectioned tissue in 30 per cent. potassium hydrate. Fat droplets are the only confusing structures. Stained specimens, whether fresh or hardened, are by no means as satisfactory and there is great diversity of opinion as to the most suitable stain. Busse, Curtis and Sanfelice state that their forms are not recognized in tissue stained by hæmatoxylin, by the Gram method, or by the simple aniline dyes and they employ complicated special methods. Sternberg states that the Gram-Weigert method is the most suitable, although the tinge taken by the organisms may vary from Gram-positive to Gram-negative. The American workers favour polychrome methylene blue and state that carbol-thionin, or even hæmatoxylin brings out the organisms well.

Yeast and the special oidia infections (apart from the Oidium Albicans) are still among the rare diseases and this is especially true of the generalized infections. Peterson and Exner found yeasts in freshly passed urine causing it to have a milky appearance. Lundsgarde found it in hypopyon-keratitis. Colpe and Buscke judged it to be the cause of a very chronic endo-metritis. Tokishige in Japan showed that a special disease among horses was caused by a yeast. Hansemann and also Turck found yeasts to be the cause of a fatal meningitis.

However, Sanfelice's view that yeasts may produce benign and malignant tumours finds at present almost no supporters. Van de Velde reports sexenty-seven cases of yeast infection, mainly of the female genitalia, but among these one case of mastitis where the suckling baby had a severe gastro-enteritis with the same organism in its stools. He also thinks that a chronic gonorrhœa favours yeast infection. He also claims to have isolated them from the blood of some of these patients in pure culture. C. B. K.

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MEDICINE

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON AND HOWARD.

HIRSCHFIELD. "Polycythæmia." *Berl. Klin. Woch.*, No. 41, 1907.
LOMMEL. *Deuts. Arch. f. Klin. Med.*, Bd. 82, 1907.

In the course of the past few years much has been written upon "Polycythæmia"—the symptom-complex characterized clinically by an increase in the number of red cells, splenic enlargement and cyanosis. Hirschfield has recently (*Berl. Klin. Woch*, No. 41, 1907) reviewed the autopsy findings in five cases. All showed post-mortem an enormous hyperplasia of the bone-marrow, in which the normaloblasts and leucocytes shared equally. The spleen, in spite of its great increase in size, showed no evidence of erythropoesis. The author believes that the white corpuscles do not play a passive rôle, for their reproductive centres, with the exception of the lymph-glands, show evidences of stimulation. In some cases pathological leucocytes occurred in the blood stream. The primary disease process is, however, a hyperproduction of the erythroblastic apparatus. He suggests the name "Erythæmie" to distinguish these cases from the secondary polycythæ-

mia of cardiac congestion, high altitudes, phosphorus poisoning, etc., which he designates "Erythrocytose."

Lommel, in the *Deutsches Archiv fur Klinische Medizin* (Bd. 92, 1907), publishes a long article on the same subject. He reports a case in detail and gives the results of his studies on the gas-metabolism of the lungs as determined by the Zuntz-Geppert method. He found an increase of the respiratory gas-metabolism as was shown previously by Senator in two cases. There was also a decided increase in the excretion of urobilin depending upon the increased erythropœsis. The oxygen-capacity of the hæmoglobin was within the lower limits of normal. This case showed clinically some "congestion-phenomena" depending, perhaps, upon a lesion in the pulmonary circulation. The author believes that more cases of "Idiopathic" polycythæmia may be really *secondary* to congestion, and refers to his first case reported in 1906 in which the autopsy revealed a congestion of the portal system.

C. P. H.

Omerod, J. A. "Two cases of Disseminated Sclerosis with Autopsy." *Brain,* No. 119, Vol. 30, 1907.

These two cases are of interest from several points of view. Firstly, because they are completed cases, well observed clinically and examined post mortem, and secondly, because they add to the gradually increasing number of authenticated cases demonstrating how insufficient the usual text-book description of the disease still is; they show also, thirdly, the marked hysterical manifestation obscuring the underlying organic disease.

Case I.—Woman, æt. 54. Onset sudden, 10 months previous, while in usual health, with extensive spasms of legs with diarrhœa repeated on four successive days. These spasms lasted an hour or two, after which she could flex legs normally. The spasms then disappeared for five weeks. She then suffered from cramps in which her legs went out straight and then drew up again, quickly associated with severe pains in hips and legs. A short time later these cramps were replaced by flexor spasms of the legs, which soon resulted in the legs being so flexed that the knees were in the axillæ—movement of the legs was impossible but sensation was impaired; upper limbs were unaffected. There was nothing of importance in her previous history except a stroke of hemiplegia four years previous which cleared up in twenty-four hours. This may have been a premonitory symptom of her present illness. On examination, her cerebral functions were natural; she was somewhat emotional, possibly on account of the pain, her speech was

normal. The optic discs were both rather pale in the temporal half; there was no nystagmus of eyes. There was no tremor of the upper extremities. The lower ones were drawn up in extreme contractures as described. There was no objective loss of sensation in any of its forms.

The plantar reflexes were extensor in type, and there was incontinence of urine. The legs were œdematous and there was a sacral bed sore.

Microscopical examination of brain and cord showed dessiminated patches of sclerosis—affecting chiefly the myelin sheaths—in cord, medulla, pons and mid-brain.

Case II.—Woman, æt. 38. Lymphangitis with abscess of the right upper limb; stiffness of elbow and fingers followed the application of a splint, with paræsthesia in the fingers spreading to the right side of trunk. Afterwards abscess in right thigh and weakness of right lower limb; peculiar rash on right thigh and right side of body. On admission to St. Bartholomew's, three or four years after onset of illness, she was completely bed ridden. Right upper limb was rigid, particularly the fingers, where there was pain on passive movement; right hip was rigid, but less so than arm; wasting of right limbs, especially the arm; right hemianæthesia shown to be hysterical in origin and a rash of peculiar appearance and distribution—probably an artifact. Plantar reflexes extensor, partial optic atrophy.

Transferred to Queen Square Hospital four and a half months later, there was still extreme rigidity of the right fingers, anæsthesia had spread upwards to right clavicle; rash now stationary. No further change for the next three or four months, then spread of symptoms to the left side, viz., anæsthesia left as well as right from neck downwards, weakness of left limb, jumping movements, and disagreeable sensations in left limbs; further slight spread of the rash; general debility and depression.

She left Queen Square Hospital at Christmas, 1905, and died of abdominal cancer in November, 1906, *i.e.*, some five or six years after the onset. Examination of the nervous system showed the presence of disseminated sclerosis in the mid-brain and cord.

Although both of these cases are well marked examples of the disease as shown at autopsy, neither shows those symptoms which are usually described as the typical picture of advanced cases.

The symptoms common to both are a "hysteroid" condition and cramp-like twitchings of the legs, partial optic atrophy, and evidence

of involvement of the pyramidal tract as shown by the presence of Babinski's reflex. The paper is illustrated with a plate and diagrams showing the situation of the lesions. C. K. R.

OBSTETRICS.

UNDER THE CHARGE OF DRS. CAMERON, EVANS AND LITTLE.

PELVIC DEFORMITIES.

Under this heading there has appeared in the *Annales de Gynécologie et d'Obstétrique* for September and October, 1907, a very interesting and somewhat extensive analytical review of recent literature appertaining to the subject.

CÆSAREAN OPERATION.

The first paper is by Prof. Leopold, "Beitrag zur Sectio Cæsarea auf Grund von 229 Fallen." (*Arch. f. Gyn.* 1907, *Bd. LXXXI, Hft.* 3.) This is a review of 229 cases of Cæsarean section performed at the Royal Frauen Klinik of Dresden. The review was undertaken to ascertain whether the new operation of Hebotomy would modify the therapeutic procedure in any of the cases. The paper is a mass of statistics and does not lend itself to analysis; 200 of the cases are carefully studied from various standpoints.

In general, it may be said that the conservative operation was performed in 134 instances; while the radical operation (Porro) was followed in 66 cases. In 188 of the cases the indication was pelvic contraction. In 12 other cases the cause was of some other nature, such as tumors, cicatricial contraction of the soft parts, rupture of the uterus, etc.

In the cases of pelvic contraction the indications were relative in 132 instances, and positive in 56. In the total 200 cases the mortality was 7.5 per cent. of the mothers. In 52.9 per cent there was no fever in the puerperal period; 86 infants were born alive, 11 died in the course of delivery or immediately afterwards and 7 died within 3 weeks. Thus 88 per cent. of the infants left the hospital alive.

In the second series of 29 cases 2 mothers died and one child.

Certain cases are then related in detail and conclusions formulated upon them by Leopold. In one of these regarding a woman who had perished from sepsis after Cæsarean operation, he states that, in certain conditions, when all hope of terminating labour by the natural route fails, and the patient is in hospital, hebotomy enables one to deliver the woman with comparative safety to both mother and child. In pri-

vate practice if all the indications permit of it, hebotomy is an operation of preference. When this is not the case Leopold does not think that embryotomy on the living child is any crime.

In certain cases of intra-uterine infection where the infection is gonorrhœal, the author thinks that the Porro operation should be that of choice if the patient is in hospital, but in private the practitioner would be compelled to perforate the living infant.

Leopold has been able to follow the history of 47 infants delivered by Cæsarean section. Of these 47, 9 are still living after an interval of 8 years. Of the Porro operations, the history of 23 infants out of 37 has been obtained. Of these 23, 17 are still living after a period of 8 years.

J. NEUMAN. "Die Sectio Cæsarea an der Klinik Schauta." *Arch. f. Gyn. Bd. LXXXIX., Hft. I.*

One hundred and eighty Cæsarean operations are recorded in this article of which 175 were performed on the living and 5 upon the dead woman, the whole series being collected from the observations 20 years previous to 1905. The series was collected from the services directed by Schauta at Innsbruck, Prague, and Vienna, and correspond to a total of 1,374 labours.

As a whole the operation of Cæsarean section was performed in one out of every 289 cases of labour.

The author proposes the following nomenclature based on the varied operative technique; (1) the Cæsarean operation according to Sänger; (2) Cæsarean operation, with a consecutive operation upon the adnexa with the object of sterilization; (3) Cæsarean operation with consecutive:—(a) supra-vaginal amputation of the uterus after the method of Porro. Intra-peritoneal, retro-peritoneal, of the pedicle, and inversion into the vagina; (b) abdominal extirpation of the uterus; vaginal extirpation of the uterus.

In 171 of these cases the operations were for relative indications, and in 47, absolute. In 4 cases the operation was the result of tumor blocking the pelvis. In 8 cases cicatrical contraction of the soft parts, 7 patients were the subjects of eclampsia; 161 patients recovered and 14 died.

The author seems to think that the question as to the bag of waters being intact, has no influence whatever upon the recovery of the case. In the fatal cases, at least 8 of them were attributable to the operation.

In the first decade the mortality was 9 per cent., while in the second decade it fell to 2 per cent., figures which indicate the great improvements which have been obtained by modern methods; 145 children

were born living and 10 born dead, 20 were born asphyxiated but recovered.

Brief reference is made to two cases of Cæsarean section reported by F. Volenta in the *Gyn. Rundschau.*, 1907, *Hft.* 10. On one of them the operation was performed on account of obstruction by myoma in the pelvic cavity and in other it resulted from marked osteomalacia. The second case died on the third day with symptoms of pulmonary embolism.

LePage in the *Bulletin Médical,* 29 May, 1907, speaks of the "Operation Tardive." Three cases are reported, (1) Cæsarean operation upon a primipara who had been in labour for 36 hours, the dilatation being about the size of a silver dollar. The recovery was complicated by a phlebitis of the right leg.

(2) A woman having an oblique ovular pelvis, in labour for some hours whose bag of waters had ruptured 4 hours before the operation was undertaken.

(3) A II para in labour for more than 48 hours in which the infant was evidently suffering, as meconium had been passed in considerable quantity, staining the membranes and even the uterine wall. The recovery was absolutely uneventful.

He concludes that the operation is permissible in cases that have been in labour for some time, even after the rupture of the membranes. Reference is made in the paper to a few other cases of a similar nature reported by various authors.

PUBIOTOMY.

KANNEGISSER. "Uber subcutäne Hebotomie auf Grund von weiteren 30 Fällen and über die Dauererfolge der Operation." *Arbeiten aus d. kgl. Frauenklin, Dresden XII. Congress der deutsh. Gesellsch f. Gyn., Berlin,* 1907.

The author records in this paper a second series of 3 pelviotomies performed in the Dresden Klinik from December, 1905, to the end of March, 1907. They represent the proportion in 2,630 confinements or 1.40 per cent. and 13 were primiparæ and 17 were multiparæ.

The true conjugate varied between $6\frac{1}{2}$ and 8 cm., 22 were the subject of flat rachitic pelves, with general contraction. In his first series of cases the author stated the indications as follows:—Pelviotomy is indicated in a contracted pelvis with the true conjugate 7 to $8\frac{1}{2}$ cm. When the disproportion between the pelvis and the fœtus is a priori so marked that it is positively certain that the infant will not be able to pass through the excavation and live. In such conditions the only concurrent

operations are Cæsarean extremely grave, and perforation, which is upon the living infant but exceptionally permissable.

In the second series, the lower limit of the conjugate for this operation is reduced to 6½ cm., but in these lower grades it is important to ascertain the size of the fœtus and particularly the dimensions and hardness of the fœtal head. Not one of these 30 cases died, all the mothers going out in good condition. In all but one case the scar of the operation was not seen at the time of the patient's discharge from the hospital. The average time in the hospital was 25 days. The average time in getting out of bed was the 20th day. Every single one of the children was born alive and was born in good condition. Fourteen patients in each series developed a temperature of over 38°C., making a morbidity of 50 per cent.

The general principles of Leopold's klinik may be stated as follows:—(1) The safety of the mother is of the highest importance. In consequence when women with contracted pelves present themselves in the course of pregnancy, prematurely induced labour is still preferred rather than permitting the patient to go to term. (2) With the woman in labour, and in certain exceptional conditions where the safety of the mother is generally involved, perforation of the living child is considered justifiable. (3) Leopold prefers only to undertake hebotomy when dilatation is complete. (4) Hebotomy (always subcutaneous) is performed and, to terminate the labour without delay, depending on the case, forceps or version precede extraction.

In the 51 children in these two series of pelviotomies, 28 were extracted by means of forceps and 20 by version, 2 being breech cases were extracted by the feet, and one by craniotomy.

VERSION.

Licenstein. "Ueber die Beeinflüssung der Indication zur Wendung und Extration durch die Hebotomine." *Ibid.*

In this article a study is made of 154 cases of version and extraction, carried out between the years 1901 and 1905 in Dresden at Leopold's Klinik. Forty-one infants were either born dead or moribund or died shortly after birth from traumatism which gives an infantile mortality of 62.5 per cent. The question is how would the operation of pubiotomy have influenced the results obtained in these cases.

A comparative study of the results;—(1) before hebotomy and (2) after hebotomy is very significant. One hundred and ten versions performed before the first hebotomy resulted in 35 dead children whereas 44 versions after hebotomy resulted in but 6 fœtal deaths, thus the in-

fantile mortality was 31.2 per cent. without, and 13 per cent. with hebotomy. The author considers that primiparity, and the presence of a marked contraction ring in the uterus contra-indicate efforts at version with or without hebotomy in deformed pelves.

"He concludes that hebotomy notably reduces the indications for the performance of version or extraction, but without compromising their undoubted value in special cases. The essential point being the exact appreciation of the reciprocal proportions between the pelvis and the child, the true conjugate not being *per se an* invariable guide to the necessity of performing the operation. On the whole, version and extraction remain for the general practitioner a method of operation happily efficient.

PREMATURE DELIVERY.

LEOPOLD & KONRAD. "Zur Berechtigungsfrage der künsetlichen Frühgeburt." *Ibid.*

This is a warm plea in favour of premature labour and is based upon a total of 84 induced labours on account of contracted pelvis in the Dresden Klinik between July 1900 and December 1906, in a total of 14,094 *accouchements* making one induced labour in every 168 confinements. In this space of about 6 years 11 women were submitted several times to the operation of induced labour. All the patients were multiparæ. Previously these women had 212 confinements with an infantile mortality of 62.5 per cent., statistics closely related to those of Sarvey.

With regard to the conditions required for the artificial premature delivery the author states these as:—(1) to preserve, if possible, the bag of waters until dilatation is complete, and when two hours after the rupture of the membranes the fœtal head has not become engaged in the superior strait, one ought to proceed to version and extraction. (2) The upper limit of the operation is a conjugate of 8.5 cm., and the lower limit for generally contracted pelvis 8 cm. and for the flat rachitic, and flat rachitic generally contracted pelvis 7.5 cm. (3) The most satisfactory time to induce labour is from the 35th to the 36th week, from the standpoint of obtaining an infant sufficiently developed to be viable. Certain exceptions may be made in regard to the time, in relation to a particularly rapid development of a fœtus.

The author gives a series of tables of a study of these cases from every standpoint.

Results:—(a) Infants.

Of the 84 obtained, 71 were living and 13 dead; of these 71 which were born alive, 13 died before the 10th day, and 58 left the clinic in good condition, being a percentage of 69.5.

(b) Mothers.

Puerperal apyretic 59, puerperal pyretic 24, died, 1.

The chief difficulty about premature delivery is that one has to deal with an infant frequently feeble and difficult to bring up successfully. In carefully studying this question the author has been able to obtain the records of 353 infants born alive after induced labour, and of these infants 74 or 20.96 per cent. died during the first year, which is about the same percentage as that of infants born at full term.

The general infantile mortality for the first year in Saxony is 20 per cent. Of 398 infants delivered as results of premature induction of labour, 85 died in the course of the first year, 21.3 per cent., which seems to be somewhat better than the general infantile mortality rate.

As a result of their study the authors strongly support the merits of premature induction of labour in cause of pelvic deformity, especially in general practice, believing it to be contra indicated (1) in primiparæ, (2) in certain multiparæ in whom previous labours seem to indicate it is better to wait for spontaneous labour. Their personal experience leads them to conclude:—(a) that in general contracted pelves with a lowest true conjugate of 8 cm.; (b) in flat rachitic pelves, and flat rachitic generally contracted pelves with lowest limit of true conjugate of 7 cm. to 7½ cm.; that in all these premature indication of labour in the 36th week promises to be successful both for the mother and for the child.

The operative technique which gave the best results in Dresden were:—(a) Bossi, plus hydrostatic dilators in flat rachitic pelvis; (b) and the bougie in cases of general contraction of the pelvis.

PERFORATION.

MEISSNER. "Die Perforation des lebenfrischen und absterbenden Kindes," 1892-1906. *Ibid.*

Between 1892-1906 perforation of the living child was performed 57 times, 112 times upon children dead or moribund, making a total of 169 perforations in 29,725 labours in the Dresden Klinik. The interesting point of this paper is the study of the question of the legitimacy of perforating the living child. Of the 57 women who were submitted to this procedure, 8 had normal pelves, and 49 had contracted pelves. The contractions varied between 5.6 cm. and 7.6 cm. Thirty-six cases were primiparæ and 21 multiparæ. The cases are arranged into definite groups according to the causes which led to the performance of the operation.

In the first group were placed malformations of the fœtus; in the second group 6 cases of eclampsia in which other procedures were im-

possible. In the third group, three women with extreme pelvic contraction, but in whom conditions were present which absolutely excluded the Cæsarean operation. The fourth, consisted of 8 women who entered the hospital in a serious condition, as a result of efforts at delivery outside the klinik. In the fifth group were placed 3 cases suffering from general diseases of a serious nature such as tuberculosis. In the sixth group were 10 cases which are given in detail, the causes being varied. In five at least of these the operation of hebotomy would probably be performed if the cases came under observation to-day, though the rule of the Klinik is "Erst die Mutter und dann das Kind!"

HIGH FORCEPS.

LEISWITU. "Ueber die Gange in der Therapie des engen Beckens zur Rettung des Kindes." *Ibid.*

Between January 1894 and January 1907 in a total of 27,138 labours in Dresden Klinik, 697 applications of the forceps were made, being a proportion of 2.55 per cent. (a) In the interest of the child, 440 times, 63.13 per cent. (b) In the interest exclusively of the mother, 99 times, being 14.2 per cent. (c) In the interest of both, 158 times, being 22.67 per cent. Thus, the most frequent cause for the application of the forceps was the endeavor to save the child. In the 440 applications to save the infant's life, in but 109 of them was the pelvis normal.

These 440 cases terminated by the forceps with the object of saving the child, resulted in the delivery of 63 dead children, 377 surviving the operation, a total of 85.68 per cent.

In conclusion the author says that high forceps in cases of deformed pelvis permit the delivery of the child with safety, but at the price of considerable damage to the mother.

Thus the principle is still maintained in the Dresden Klinik, that in cases of pelvic contraction the application of forceps is not an operation without danger to the mother, and in general practice its indications should be definitely defined.

Finally he considers that it is necessary, especially in general practice, to proscribe absolutely the high forceps operation and to substitue for it hebotomy, an operation less grave. In certain cases whatever may be the reason, when the physician is unable to perform hebotomy he should not delay to resort to perforation of the living child.

D. J. E.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The third regular meeting of the Society was held Friday evening, November 1st, 1907, Dr. Wesley Mills, President, in the Chair.

GONGENITAL HEART DISEASE.

Campbell P. Howard, M.D., exhibited a case of congenital heart disease in a Hebrew child, 4 years of age, in which there was a history of cyanosis at birth persisting in a moderate degree to present date. There were also clubbing of the fingers, a rough, somewhat musical systolic murmur and thrill of maximum intensity over the pulmonary cartilage, and some retardation in the physical development. There was no polycythæmia. The various theories of cyanosis in this affection were briefly discussed.

COMPLETE INFARCTION OF THE RENAL CORTEX.

Oskar Klotz, M.D. The specimen, which I wish to bring before the Society this evening, is that of a kidney from a woman twenty-five years old. The case is an interesting one both from the clinical and pathological aspect. The woman had been pregnant, and was delivered some days previous to death. There had been suppression of urine, and the marked symptoms during the latter stages of her pregnancy are referable to the kidney condition, which was found. I should like to ask Dr. Berwick to give a detailed clinical history of the case. At autopsy the extensive anasarca, ascites and hydrothorax were notable. The pericardium, too, contained a fluid, which shortly before death had become infected, giving an acute serofibrinous pericarditis.

The kidney showed two conditions: an old mixed nephritis, which showed a fair amount of glomerular fibrosis; and a recent condition of infarction of the outer half of the cortex. This latter condition is readily seen macroscopically as a yellow rim of necrotic tissue. This border is separated from the rest of the cortex by a hæmorrhagic zone. The medulla is not involved in this necrotic process. You will notice that there are occasional islands of healthy cortex lying within the necrotic border. These, I take it, are areas which receive their blood supply from the capsule.

Microscopic examination shows that the outer zone of the cortex contains only the outlines of the tubules devoid of nuclei. The greater portions are free from any infiltration, but, nevertheless, isolated areas of inflammatory exudate are seen. Some of the small arteries in the cortex contain a hyaline and granular thrombus, and it is to these that we must refer the damage done in the cortex. The main vessels enter-

ing at the hilus are free. Likewise, the vessels in the zone between the medulla and cortex are free from any sign of plugging. It would seem that only those branches of the arteries which form an arc in the middle of the cortex are involved. This being the case, it is probable that the agent bringing about this thrombosis is one manufactured in situ. What this can be, I am not able to say. We have, however, the interesting condition in both kidneys of this patient, of complete infarction of the outer zone of the kidney cortex. In the literature I find similar cases are reported, all of them in association with pregnancy. However, the lesion is a very unusual one, and one which requires much further study to explain the origin of the thrombosis. Infection, I think, we can exclude, as the thrombi in the vessels were not of an inflammatory nature. It may be that we are here dealing with non-inflammatory thrombosis similar to those met with in the liver in eclampsia.

Geo. A. Berwick, M.D. The patient, a primipara, came under my notice about the middle of August. She was then about 7½ months pregnant. She gave a history of being well until about 3 weeks previously; when she began to suffer from insomnia. She was very pale and on boiling a specimen of the urine it was practically solid albumin. I put her to bed on August 24th and gave free saline purgation with liquid diet. She did not improve and on the 29th entered the Montreal Maternity Hospital. Here Dr. Chipman saw her with me. There was now tremendous œdema of the vulva which in spite of treatment seeemed to increase and on the 31st the question of immediate delivery came up. Cæsarean section was the method decided upon and no difficulty was met with in performing the operation. She recovered fairly well from the operation, but on the day of the operation no urine was passed at all. She was then catheterized and the amount of urine varied from 95 cc. which was the lowest on any one day, to 465 cc. the highest. Before operating it varied from 150 to 300 cc. in the 24 hours. On September 5th, only 105 cc. were passed but without any particular complaint of headache. About 11 o'clock, however, after some restlessness she was seized with a convulsion which lasted a few minutes and about half an hour later another. 800 cc. of blood were removed and she regained consciousness and seemed fairly comfortable for a week after. The pulse was weak and on several occasions there was dyspnœa which was very marked on the night of the 11th, a hypodermic of strychnine gr. 1-30th and ⅙ gr. morphine was given and two hours later a hypodermic of 1-100th gr. digitalin was given and she rallied and was considerably better that day. Two days before death pain was complained of over the heart and pericarditis was found to be present with beginning

ascites. From that time she became weaker and died on the 13th of September. During the time she was in hospital she was given frequent hot packs some of which were effectual, others not, and every four hours was given 300 cc. of saline solution.

The personal history of this case seemed to be normal; the first seven months of pregnancy were uneventful, and it was only after this time that she began to have any symptoms at all. There was no history of scarlet fever or rheumatism.

W. W. CHIPMAN, M.D. I was deeply interested in this case, especially in the matter of treatment. As you have heard, the operation of Cæsarean Section was performed upon this woman and she lived afterwards for thirteen days. At first she seemed to improve, but later the kidneys gradually failed. The child survived for four weeks, then it too died.

When I first saw this case with Dr. Berwick, the vulva was swollen as I have never seen it before, the labia majora were each the size of one's fist, and the lower half of the vaginal mucosa was extremely œdematous. It was with great difficulty that the cervix uteri could be reached by the examining finger. As all means to restore the kidney function has failed, we agreed that delivery of this woman was essential. The alternative forms of delivery were either the induction of labour by means of a bougie or Cæsarean Section. I could see many objections to the former procedure, and could fully realize that if a full-term child came down through the œdematous vagina and vulva, there would in all likelihood be considerable sloughing, and the consequent risk of infection. Moreover, as is well recognized, a bougie is slow in action and not infrequently fails altogether to initiate labour pains. Cæsarean Section was therefore decided upon. The patient was on the table under the hour and recovered well, and lived, as we have seen, a fortnight. My own feeling is that the operation threw no more additional work upon the over-loaded kidneys than the induction of labour would have done; but it is upon this point that I seek the opinion of the members of this Society.

A. LAPTHORN SMITH, M.D. I would like to offer my cordial support to Dr. Chipman for what he did in this case, but think that he should have waited only one hour after the urine had been found solid, before doing Cæsarean section. I had such a case last summer; the woman had seven convulsions and after spending one hour in moderate efforts to deliver with forceps, I removed her to the Samaritan Hospital and did Cæsarean section, both mother and child being alive and in splendid health at present.

M. Lauterman, M.D. It seems unfortunate that a case presenting so many important points for discussion should be up for diagnosis at this hour. I would like to ask if any record was kept of the examination of the urine, the quantity of urea eliminated as well as the microscopic findings might have afforded valuable information. Was the question of renal decortication considered?

One of my own cases developed this unfortunate condition 15 days after the uterus had been completely emptied; it does seem that there should be some means at our command for dealing with such cases.

While in Berlin I had occasion to discuss the question of renal decortication with Professors Israel and Senator, who, while they thought that this measure offered some hope, were not particularly enthusiastic about the operation.

Geo. A. Berwick, M.D. With regard to the child, it could not be nursed and artificial feeding did not agree with it, so one of the patients in the hospital undertook to nurse it for a time; she left hospital and another was tried, but the child did not thrive and died of acute intestinal disturbance; there were no symptoms of any trouble with the kidneys. As to the urine it was examined microscopically and after operation; the amount of albumin was less than before, 2½ grms. to the litre 24 hours after operation. The temperature never went above 99 1-6.

ECTOPIC GESTATION.—A CLINICAL STUDY.

W. W. Chipman, M.D., read the paper of the evening illustrated by diagrams.

Dr. William Gardner: In discussing a paper like this embodying so much experience, one who has also had a large experience can only corroborate and confirm all that has been said. The paper has practically covered the whole subject in the well-known excellent literary style which one may always expect from this quarter. The condition now known to be much more frequent than was formerly supposed may be met with in the experience of the practioner in almost every department of medicine, and to be forewarned is to be forearmed.

One point on which I do not remember the reader of the paper to have touched is the medico-legal aspect of the more severe type of case. This was well illustrated by one which occurred in this city a good many years ago, in which I was much interested. I had been giving this woman some local treatment for a minor pelvic affection for a few weeks, when she ceased to attend. The next thing I heard of her was that she had died after seven hours with intense abdominal symptoms. The nearest doctor was sent for and failing to recognize the true nature

of the case he prescribed a dose of morphia, which did not relieve. He was again sent for but refused to attend and ordered the morphia to be repeated. The woman died shortly after. The doctor was accused of poisoning her. This, of course, he denied, and demanded an autopsy. This was at first refused, but on the doctor threatening to bring in the coroner it was finally granted. Dr. Finley, I believe, did the autopsy when an enormous collection of free fluid blood was found in the peritoneal cavity. It had come from a minute rent in an expansion of the isthmus of one of the tubes, no larger than a shelled almond. The symptoms of this type of case sometimes resemble those of irritant poisoning. Operation is, as a matter of course in the present position of surgery, the only proper treatment, and I agree with Dr. Chipman that in all but a few exceptional cases it should be by abdominal section. One exception I should make would be the case of an acute infection of the collection where presumably the blood had ceased to flow.

While as a rule we must operate, I belive there exists a type of case of very early, tubal abortion from the fimbriated end of the tube, attended with very slight hæmorrhage, in which the peritoneum disposes of the collection. It must, however, be admitted that the diagnosis of such cases is difficult and often uncertain.

While discussion of details in the performance of operation is perhaps scarcely in order, I cannot refrain from entering a protest against the removal of the ovary of the affected side because it is embedded in blood clot and blood-stained, even if it is slightly cystic. Such ovaries are still capable of performing useful function. Still less can there be any justification for the removal of the other tube and ovary because in rare cases the woman has had a second ectopic pregnancy.

A. Lapthorn Smith, M.D. This paper has excited my admiration for the reasons given by the previous speaker and especially for the frankness with which Dr. Chipman has dwelt upon the difficulty of diagnosis. There is a feeling among a great many doctors that, unless you know the exact condition present you should not do anything. I think this paper of Dr. Chipman's will have a good effect, so that as soon as a practitioner has a suspicion in his mind that he is dealing with a case of a tubal pregnancy he will call in a specialist, and if the specialist is fairly certain that this is the condition present he will operate at once. The ovum has the power to eat through the vital tissues into the blood vessels and cause fatal hæmorrhage, and is therefore to some extent a malignant disease. When it comes to the question of taking such risk by waiting until we are certain, it is far better to operate at once and save every case, even if occasionally we find some other, but equally serious condition. I have made these most fortunate mistakes several

times, and I am glad to have made them, because they saved lives which would otherwise have been lost. Several of these fortunate mistakes revealed a perforated appendix which was quickly removed and the patients recovered. Another was a twisted ovarian cyst with a hæmorrhage of two quarts into it in a woman who was a month pregnant. Here we had all the symptoms of a ruptured tubal pregnancy, such as hæmorrhage, shock, high pulse, low temperature and sudden pain in a woman who was pregnant. Immediate operation. in the belief that it was a ruptured tubal pregnancy, saved her life. With regard to the frequency of tubal pregnancy my experience corresponds pretty exactly with Dr. Chipman's for I had my fortieth case last month out of 815 abdominal sections with two deaths, my thirtieth and twenty-eighth. Only one of mine had a pregnancy in the uterus as well as in the tube and I have not met with one in the broad ligament. A curious case I had was that of a woman who had been sterile for many years and I was treating her at the Montreal Dispensary for salpingitis; she became pregnant while I was treating her. I examined her twice a week and was able to feel a tubal pregnancy from the first. She entered the hospital and I operated by the vagina and removed the pregnancy which was unruptured and as large as a sausage. The result was very satisfactory. This was the only case I have done by the vagina. Dr. Chipman has just pointed out that one of the means of diagnosing is the open os. My 38th case was one which went on to full term, the woman had a furious labour and I could put two fingers easily into the uterus, but it was empty and the full time baby was alive in the abdominal cavity. It lived six hours and the woman lived eight days after operation. Her doctor believed from the third month that it was a tubal pregnancy, but I waited for characteristic signs and there allowed the case to go on till too late, adding one more to my already long list of victims of so-called conservatism.

(To be continued.)

Asylum Service.—The Government of Ontario is responding nobly to the cry from the medical profession for reform in the asylum service —especially as to appointments. The Grit heads of asylums are getting gradually weeded out, or resigned out, or transferred out. By a singular and happy coincidence Tory heads are coming in to take the places of the useless Grits. The world moves on, and in the course of time Ontario will have the finest asylum service in the world. Appointments to senior positions will depend on merit alone—the merit of being good working Tories.—*The Canadian Practitioner,* December, 1907.

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BIBLICAL MEDICINE AND HYGIENE.

BY

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"Honour a physician according to thy need of him with the honour due unto him: for verily the Lord hath created him. For from me Most High cometh healing: and from the King shall he receive a gift. The skill of a physician shall lift up his head: and in the sight of great men he shall be admired. The Lord created medicines out of the earth: and a prudent man will have no disgust at them." So wrote Jesus the son of Sirach, in Ecclesiasticus. But amongst theologians many texts, such as "They who minister about holy things should live of the gospel" are more popular. In fact, these verses have received scant notice. One writer—a humorist, no doubt—correlates them, as is the theological custom, with certain New Testament verses, and concludes that these are the physicians of whom the woman with the issue of blood had suffered many things, and on whom she had spent all her living. Yet the proverbs of the ancient Hebrews refer to the physician in equally favourable terms: "A wise man will not live in a town where there is no physician"; "They that are whole need not a physician, but they that are sick."

It has repeatedly been observed that the Hebrew race, in spite of centuries of wandering, is remarkably healthy. To-day they enjoy a relative immunity from tuberculosis (Osler), and when they do not lapse from the Levitical code, frequently escape zymotic disease during an epidemic. This cannot all be attributed to the original virility of the clan because no Jewish blood is pure to-day. An explanation can be found, however, when we consider that which Israel Zangwill has termed the "pot and pan part of their religion" was, in reality, a religion of cleanliness and implied the ability on the part of the priests

of diagnosing many diseases and embodied rudiments of preventive medicine.

The connexion between religion and medicine was not an unmitigated blessing. Accurate medical knowledge now obtained by post-mortem examination was impossible on account of the ceremonial uncleanness which followed contact with a corpse. Further, the annual gathering of the people in high places aided in the dissemination of disease and was productive of much vice and immorality.

Two theories of the etiology of disease in general held sway: (I) The Demonic; that some diseases were due to the possession of the patient by some demon, or if the illness was very severe, by a legion, at least, of evil spirits; (2) The Punitive; that diseases were meted out as punishment by Yahweh for sins either of the patient or of some of his ancestors. Hence, when any one took sick, the head of the family carried an offering to some temple and asked as to the fate of the patient. If the answer came back that he must die, then, as with the Greeks, it was considered useless "to strive against the Gods." A favourable answer and promise of recovery also freed the friends from anxiety and made treatment unnecessary. "If thou wilt diligently hearken to the voice of the Lord thy God and wilt do that which is right in His sight and wilt give ear to His commandments and keep all His statutes, I will put none of these diseases upon thee which I have brought upon the Egyptians, for I am the Lord that healeth thee."—*Exod.*, XV, 26.

While tracing their diseases, as they did their origin and theology back to the "First Cause," the Jews recognized secondary causes as operative in the production of disease. When the Philistines were stricken with what was probably the bubonic plague they evidently recognized as we do to-day that the disease was carried from one section of the country to another by rats and mice, for they endeavoured to propitiate Yahweh by offering five golden images of the most noticeable result of the disease and five golden rats—images of the probable disseminators of the plague. Again, when the wanderers in the wilderness wearied of manna and craved for a more varied menu, an epidemic broke out in the camp, which the people attributed to the quail which they had just eaten.—*Num.*, XI, 33. To-day we know that the quail probably carried infection to the Hebrew camp from some other band of wanderers, it may have been some Bedouin caravan.

From the accuracy of the Biblical descriptions we know that many diseases were recognized by the ancient Hebrews. Saul, "naturally a shy, self-conscious man, easily exalted into ecstacy and tyrannical self-

satisfaction, possessed of an impulse to homicide, turning against his own son, and finally becoming despondent and meeting with death by suicide" (Hasting's Bible Dictionary), was a victim of recurrent paroxysmal mania. Nebuchadnezzar, like the daughters of Proetus, suffered for seven years from monomania, believing that he was a beast. Nabal, after a hearty supper and a somewhat riotous night was stricken with appoplexy and died ten days later; or, as the Hebrew states it, "his heart died within him and he became as a stone, and it came to pass about ten days later that the Lord smote Nabal that he died."—*I Sam.*, XXV., 37, 38.

Ahijah's eyes were "fixed by age," a poetic description of senile cataract. Epileptics were common in Bible days as now, but nowhere do we find a more accurate account of an epileptic seizure than in *Luke* IX, 39: "And lo, a spirit taketh him and he suddenly crieth out; and it teareth him that he foameth again, and bruising him hardly departed from him." Again, a priest who had contracted spinal caries could not minister in the sanctuary, and the same prohibition was applied to a man with a flat nose—doubtless a sign of the same disease, as Hogarth meant it to be in so many of his pictures.

Palsy, of which we read so frequently, was equivalent to the word paralysis of to-day, a symptom of many diseases of the nervous system. The centurion's servant probably had meningitis, *Matt.*, VIII, 6; while the man with the withered hand, *Matt.*, XII, 9-13, could probably date his disability from an attack of infantile paralysis.

Palestine was naturally a healthy land. A country of hills and valleys, with rapid streams not easily polluted, and having no harbours, could have few imported epidemics. Yét we read of diseases which we must attribute to the climate. One of the promises held out to the godly by the Psalmist was, "the sun shall not smite thee by day nor the moon by night," *Psalms*, CXXI, 6; an immunity which would be valued by a community whose history recorded deaths by sunstroke, such as that of the Shunammite's son, 2 *Kings* IV, 19, and of Menasses, *Judith* VIII, 3. In *Deut.* XXVIII, 22, we have reference to fevers, probably of malarial origin, and to "consumption," which some have identified as modern pulmonary phthisis; while the Jewish proverb, that it is easier to rear a forest of olive trees than one child, would indicate that infantile diseases were exceptionally severe.

Surgical cases then, as now, were considered more dangerous and, consequently, brought greater fame to the successful physician. The woman bound by the spirit of her infirmity, *Luke* XIII. 11-17, was a case of senile kyphosis; while Lazarus, *Luke* XVI, 20, was the typical

beggar outcast from society, who can be seen at any of our city dispensaries suffering from varicose ulceration. That the priests possessed some accurate surgical knowledge cannot be disputed, for the rite of circumcision was delayed if the child was jaundiced—a fact that would indicate that they appreciated the danger of hæmorrhage in such conditions. Few cases of accident are described in the Bible, but that which happened to Abimelech is described at sufficient length to give us ground for diagnosing fracture of the skull, the retention of consciousness showing the absence of compression.

The reproach of Van Helmont, that "a bloody Moloch presides in the chairs of medicine" could not be brought against the Hebrew physicians as the sacredness of blood prohibited bleeding. In Proverbs XXX, 15, we have reference to the use of leeches.

Their materia medica consisted of balm of Gilead, myrrh, cinnamon, cassia, aloes, calamus, spikenard, camphor, and mandrake. Folk-lore medicine, as amongst primitive people attributed healing virtues to saliva, and the first aid to the injured rendered by the good Samaritan when he poured oil and wine into the sufferer's wounds was certainly surgically orthodox. They were ignorant, however, of dietary laws, and we cannot but think that Hezekiah was in greater safety when Isaiah prescribed a fig poultice than his kinsman who enjoyed a diet of fig pudding.

Osler, in his "pessimistic therapeutic nihilism," as some of his truthful statements about medicine have been termed by the American writers, has stated that much of the humbuggery of the profession still lingers about mineral waters. But if, as theologians tell us, "never yet has any particular doctrine or mode stating truth held its own for any length of time in human history unless there was some genuine truth beneath it," then we must still count mineral waters of some therapeutic value, since the Hebrews believed in their efficiency even as the Gentiles of to-day. The saline waters of the Jordan, the miraculous healing power of the pool of Siloam, and waters of Bethesda were well known to all devout Jews. And to-day their descendants still bathe in the pool of Bethesda for rheumatism and other disorders. They still believe that the waters are more efficacious when they are "troubled," that is, when the natural syphon under the cave overflows.

One factor which probably contributed in no small degree to the health of the Jewish race was their care in providing good water supplies, that of Jerusalem being particularly complete. The city was supplied by five conduits. One, supposed to have been constructed by Solomon, was thirteen and a half miles long, two feet deep, and one

and a half feet wide, and conveyed water from Solomon's pool to the temple. Another conduit connected this with a reservoir twenty-eight miles away. This latter passed through two tunnels, one four miles and the other seventeen hundred feet in length, while between the two was a reservoir which served as a sedimentation tank. The water was distributed in Jerusalem by leaden pipes to fountains, cisterns, and pools open to the public. We speak of the Jews as a primitive people, and yet contrast this water supply with that of many of our large cities—drawn from rivers of commerce, within a short distance of polluted harbours, conducted to the city and stored in uncovered reservoirs, open to infection, to be distributed to a typhoid-stricken public without filtration or even sedimentation.

Of sanitation as we understand the term to-day the Jews knew little. The hungry dogs of the city acted as scavengers, and the sewage disposal was of the crudest character. But even as their primitive views of Yahweh as the national God evolved into the "one God, one law, one element," of to-day, even so were their ceremonial ordinances concerning leprosy the beginning of modern preventive medicine. Suspected lepers notified the priest; they were isolated for twenty-one days, and examined by the priest at weekly intervals. To-day we know that the Jews confounded many skin-diseases, such as vitiligo, with leprosy, but yet we see here the origin of our system of notification and quarantine of infectious diseases.

As regards food the Jews were very particular, for was it not written in the law what a man should, and should not, eat? Animals of the herbivorous and ruminant groups were allowed, but no beasts of prey; nor could the fat or blood of any animal be used. In butchering there was, as there is at present, rigid inspection by one of the rabbis, who had definite rules for the detection of diseased meat. "Seven days shalt there be no leaven found in your houses," *Exod.* XII, 19, provided for a very necessary renewal of food supplies.

Amongst a people whose religious nature was so dominant such sanitary regulations could not but markedly effect the vitality of the race. For whether we regard them as the ear-marks of a people chosen by God or consider them only in the light of their modern practical and hygienic value, the old promise is still true: "If thou wilt diligently hearken to the voice of the Lord thy God, and wilt do that which is right in His sight, and wilt give ear to His commandments, and keep all His statutes, I will put none of those diseases upon thee, which I have brought upon the Egyptians. For I am the Lord that healeth thee.—*Exod.* XV, 26.

A MACHINE FOR THE FORCIBLE CORRECTION OF DEFORMED FEET.

BY

J. Appleton Nutter, B.A., M.D.

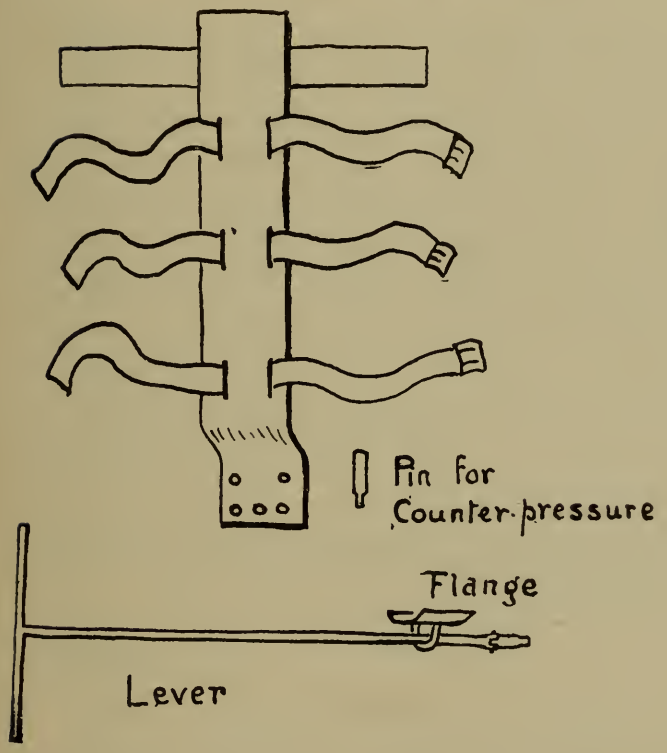
The spectacle of a surgeon wrestling with a deformed foot is a common one. Some operators claim to derive keen pleasure from the exercise, even though it bring flushed cheeks and a beaded brow. The necessity for strenuous efforts has, however, led to the introduction of many forms of wrench or lever to aid the power of the hands, and in Canada the most familiar of these is the Thomas wrench.

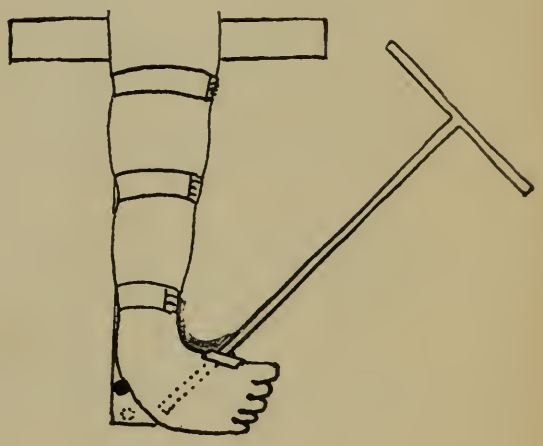
The contrivance described below presents, it is thought, original features, and is for this reason presented for consideration. It consists of a body and a long lever. The body is a piece of iron several inches broad and somewhat longer than the lower leg, shaped to permit this to rest evenly upon it. It is pierced by a series of holes for tapes fitted with buckles, which are used to secure the leg from the knee to just above the ankle. The upper end of the body presents a cross piece to prevent rotation of the leg; the lower end is curved to fit the prominent heel of a club foot. The heel piece is pierced by numerous holes to receive the end of the lever and an iron pin for counter-pressure. Both lever and pin can be placed wherever they will act to the greatest mechanical advantage.

The lever is long and strong and at its distal end has a cross bar to serve as a handle, should twisting be required. It is jointed close to its proximal end, the smaller piece being received into one of the holes in the heel piece. Its joint permits of motion in all directions, including twisting. Attached loosely to the lever is a small curved flange of iron which, well padded, is to transmit the force of the lever to the foot.

If we suppose the foot to be operated upon is a talipes equino-varus of the congenital variety, the deformity first to be corrected is, according to common custom, the varus. If considered necessary, any cutting operation, as tenotomy of the plantar fascia or the astragalo-navicular ligament, is first done. The leg is then strapped to the body of the machine (previously sterilized), and the pin (well padded) adjusted in the region of the cuboid bone. This latter is done because the deformity in a typical case of equino-varus in medio-tarsal and not at the ankle joint. The lever is then adjusted to the socket where it can be used to the greatest mechanical advantage, and the flange, well padded, is placed against the inner border of the foot in the region of

the head of the first metatarsal. By the lever the foot is then forcibly over-corrected into a valgus position. This is to be done by successive strong efforts rather than by a slow, steady advance. An assistant will steady the leg on the table. When the varus deformity has been turned into a valgus, *i.e.*, when the foot turns out instead of in, the equinus deformity is to be remedied. As a rule this yields readily after tenotomy of the tendo Achillis. Here the use of the pin for counter-pressure is not necessary. The flange is applied to the ball of the foot after shifting the lever to the most convenient socket. By its means the tendo Achillis is stretched and stretched again until the foot readily assumes the calcaneus position. The secret of a good





result seems to be thorough over-correction and the maintenance of this by plaster of Paris. It is a good rule to persist in the wrenching until the position of over-correction can be kept by a single finger.

In applying the plaster, many orthopædic surgeons extend it above the knee, flexing this to prevent rotation of the cast. The most difficult part of the plaster work will be found to be the maintenance of the over-correction. It may be found, when all is over, that the foot is barely corrected and not at all over-corrected. A good way to make sure of the result is to first immobilize the knee by plaster extending from above it down to near the ankle. While this is drying, apply plaster to the foot and toes, not including the ankle. When

both of these have set firmly, it will be found that the rigid knee and plaster-covered foot afford a grip that is most satisfactory. The surgeon himself can then hold the foot in over-correction, and his hands need not be moved by the application of plaster by his assistant to the uncovered region of the ankle.

The machine is also useful in cases of paralytic club feet, and in flat feet of the rigid type. In the treatment of the latter the aim is to get a combined varus and inversion. Hence the pin is placed opposite the astragalo-navicular joint, and the flange at the outer border of the foot. Any one who has wrestled with a flat foot, twisting it between his knees, will know that considerable, often great, force is required.

My thanks are due to Dr. E. H. Bradford, Professor of Orthopædic Surgery, Harvard Medical School, and Orthopædic Surgeon to the Children's Hospital, Boston, for advice and encouragement during the construction of the machine. By his kindness I was enabled to make use of it in a number of cases of club feet of different types at the Children's Hospital with gratifying results. I have also to thank Mr. J. H. Chapman, McGill College Avenue, whose well known care has been used in the making of a machine for use in Montreal.

TABES DORSALIS AND ITS RE-EDUCATIVE TREATMENT.

BY

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Mr. President and Gentlemen:—

It has seemed to me from my hospital experience here, that a small demonstration of Frænkel's methods of re-educating Tabetics might serve some practical purpose, as no elaborate apparatus is required, and the treatment can be carried out by any physician who has the time and patience to devote to it. The results too are so satisfactory in the great majority of cases that no case should be allowed to develop a bed-ridden condition, or to anything approaching such a condition, owing simply to the ataxia. Even if they have already reached such a condition, in the absence of arthropathic disorganization of the joints, or of very extreme hypotonia, the prognosis is still fairly good.

Before taking up the method of treatment I wish to discuss shortly the pathogenesis of Tabes Dorsalis.

You are all familiar with the pathological picture of marked degeneration of the posterior columns, most marked in the ordinary cases in the

lumbar region. Farther up in the cord the degeneration has become localised to the postero-median column, except in the rarer cases of cervical tabes. Degeneration in the posterior roots and the fibres of Charcot's root zone and those to Goll's and to Clarke's columns, the latter probably being chiefly instrumental in bringing about ataxia. This degeneration is in the lumbar region chiefly, rarely in the dorsal, but occasionally in the cervical. Slight and scattered degeneration in the posterior ganglia and some degeneration in the peripheral nerves, is also seen. In the cord too in advanced cases the endogenous fibres of the posterior columns, that is those fibres which connect the various sensory levels, show degeneration,—this is not present in the preataxic stage of the disease (Mott. Tabes in Asylum and Hospital Practice, Archives of Neurology, Vol. II., 1903, pp. 1-327).

As an associated condition Mott describes in some cases of his series a degeneration in the pyramidal tract affecting those fibres most remote from the centres of nutrition, *i.e.* in the longer fibres of the tract—those to the lower extremities. This fact seems to me to be very significant and is probably what has already happened in the sensory neurones. As if in the presence of a toxine the neurones had simply faded, and, as in a plant with insufficient nourishment, the branches farthest away from the roots are first affected.

Many theories are advanced as to the etiological factors which bring about this pathological picture. Most authorities attribute to syphilis the essential or at least the preponderating role as a causitive factor, although exposure to cold, fatigue, injury, and various toxines are also mentioned, only to be assigned by most to a secondary place in the etiology of this disease. According to various authorities the disease may start:—

1. In the intramedullary part of the posterior roots alone.

2. In their extramedullary portions, either (a) at the site of their passage through the dura mater and arachnoid, in which situation Nagiotte has described a condition of perineuritis, or (b) according to Obersteiner and Redlich, at the site of their passage though the pia mater and the peripheral neuroglial layer, in both of which they have described a chronic thickening in cases of tabes. But this perineuritis described by Nagiotte is not present in all cases of tabes, and certainly in cases of spinal meningitis where the meninges are thickened we do not get symptoms of tabes. Moreover, this condition of chronic posterior meningitis described by Obersteiner, though present in many cases of tabes, is by no means present in all. The thickening in the peripheral neuroglial layer is probably secondary to the alterations in the spinal cord.

3. Marie and Oppenheim have been inclined to attribute it to a primary disease of the cells of the spinal ganglia, but this is usually insignificant and insufficient to explain the degeneration in the fibres.

As the etiological basis of these various theories either a definite syphilitic lesion or the action of a syphilitic toxine on the posterior ganglionic cells, is called into action. Fournier was the first to point out the close relation between syphilis and tabes and Erb has found as many as 90 per cent. of his tabetics gave a more or less definite history of the infection. Gowers' statistics are not so high, amounting to about 80 per cent.; others are less still.

4. Von Leyden looked upon the disease as a peripheral neuritis induced chiefly by exposure to cold. Such a neuritis may occur, but in that case the motor fibres are equally involved with the sensory and in the ordinary case of tabes the purely motor functions are not altered.

One is immediately struck with the multiplicity of these hypotheses and their inadequcay to explain many points in the symptomatology of tabes, such as, the optic atrophy, the cranial nerve palsies, Argyll-Robertson pupil, etc., which are so frequent.

Tabes is not a syphilitic disease. Everybody recognises the fact that specific treatment has no influence on the course of symptoms, and the hypothesis that it is due purely to the action of some syphilo-toxine leaves many things unexplained. For instance, why is it so much more common in men than in women and why it is not common among the coloured races where syphilis abounds. And again, if it were due to a syphilo-toxine merely with an elective action on the sensory neurone, why are some parts of the sensory apparatus involved and not others? Tabes is thus not a systemic disease in the true sense of the word.

It is not my intention to discuss these various hypotheses further, which we see are wholly inadequate to explain the disease, but I would like to consider more fully the exhaustion theory first formulated by Edinger, and to point out the indications towards the prophylaxis of the disease and its relations to the re-educative treatment of ataxia. We know that functional activity of a cell is evidenced by certain changes in the Nissl bodies,—by increase in their number, change in their disposition and finally by their disorganization. If the activity is persisted in, the cell itself shows changes with eventual extrusion of its nucleus and its own complete disorganization. We know also that complete reorganization of the cell may take place at any stage, before the nucleus is extruded, under the influence of rest.

The anatomical basis of Edinger's theory was given by Weigert who pointed out that all the cells of the body are normally in a state of

equilibrium, the one with the other, so that if a cell becomes weakened by disease, or from any cause, others which lie near it must grow, eventually crushing it out and taking its place. Let us apply this to the nervous system,—we may get such a weakened condition in congenital states. These have been described by Gowers under the term "Abiotrophy," where simply from an inherent lack of vitality certain cells cannot last out the normal span of life,—they gradually die and their place is taken by the surrounding tissue. Again, where the amount of work required of a group of cells is abnormally great, even if their inherent vitality be perfectly normal, those cells may succumb simply from their inability to recuperate the loss of tissue due to the abnormal functioning. Such conditions one sees in occupation palsies, of smiths, etc., which, it is true, usually occur in under nourished individuals.

Thirdly, if the nutrition of the cells be impaired through a toxine circulating in the blood then the normal amount of work required of a cell may be *relatively* too much and its recuperative power being impaired it gradually dies. At the same time everyone recognises the fact that certain toxines have an elective action on certain parts of the nervous system. As an illustration of this, those interesting cases of Lilienstein may be cited, showing the incidence of disease falling on the part or parts of the body that had been in a state of functional overactivity.

A. A girl employed in a type foundry suffered from plumbism and the condition affected, not so much the extensors of the wrist and fingers, as the muscles supplied by the ulnar nerve. It was discovered that the girl's occupation entailed a constant quick deviation of the wrist to the ulnar side when she was filing type.

B. Another girl employed as a telephonist developed neuritis in the right arm, seemingly attributable solely to continually holding the heavy receiver in the right hand. The adoption of another apparatus which did not necessitate the employment of the right hand was followed by a disappearance of the symptoms.

Numerous other cases might be quoted. In tabes a similar condition is present. In this disease the reparative processes in the cells is impaired, due to the noxious action of a toxine on the general system, this toxine in most cases being syphilitic in origin, and those neurones which are normally most active, or most constantly at work, are those which suffer. These are, the sensory nerves from the muscles which take an important part in the regulation of muscular contraction and are constantly submitting those stimuli by which we can become aware of the condition of our muscular system and the position of our limbs.

These are constantly at work, probably almost as much in our sleeping as in our waking moments, although the stimuli do not necessarily reach consciousness. Those neurones of the lower extremities, conveying constantly sensations for the maintenance of our equilibrium, naturally in the majority of people work more strenuously than those from the upper limbs, and usually are first affected. Their degeneration is clinically expressed in the loss of the muscular tone, the sense of position of the limbs and the consequent ataxia.

Although numerous cases might be cited where the incidence of the disease has been in the arms or elsewhere owing to relative over functioning, — for instance Mott reported a case ocurring in a mounted policeman in whom the symptoms started in the arm with which he held his reins. Edinger reports two box-makers, one carpet layer and a letter sorter in the post office, all affected in the upper extremities. Also a naval officer with a history of primary infection who remained healthy until after a whole day in the blazing sun straining his eyes superintending target practice, developed an ocular palsy; this disappeared with rest but reappeared again later, and the man eventually developed true tabes.

Secondly, the purely sensory nerves which are constantly submitting sensations from the skin and mucous membranes would be liable to suffer and give rise to sensory disturbances. Thirdly, the eyes would suffer, and above all the constrictor iris which is constantly active in the reflex contraction of the iris to light, which must be almost constantly at work in contrast to the reflex arc for accommodation which is relatively seldom working. Thus is produced the Argyll-Robertson pupil.

In the same way the paralysis of the external ocular muscles, the bladder disturbances, the occasional atrophic muscular palsies can all be explained. One might ask why the peripheral motor neurone does not suffer equally with the sensory. To this Holmes has suggested the reply that the peripheral motor neurone is normally capable of responding to two sets of stimuli. First, those from the upper motor neurone, which are relatively seldom at work, and secondly, those from the peripheral sensory neurone, keeping up the tone of the muscles; it has the opportunity to repair when it is not at the service of voluntary impulses, it therefore would not be expected to become exhausted so readily as the sensory neurone, and when, the sensory neurones having degenerated, it does not get stimuli from them, it has still more time to repair.

If we accept this theory it is no longer necessary to look upon every tabetic as a syphilitic. We can understand also how trauma, exposure to cold and wet, excesses of any kind, can each be recognized as a pre-

disposing cause, which acts by disturbing the nutrition of the nervous unit, and we can understand the exacerbations of the disease following acute illnesses. Further, the well known fact that when optic atrophy occurs ataxia does not, or if already present does not increase, even tends to improve in many cases, is easy of interpretation. An adult who has become blind is not capable of performing much, and so his nervous system is spared the stress by which ataxia is produced. In the same way the relation of tabes to sex becomes explicable, men being more exposed to those influences which according to this theory we must look upon as etiological factors in the disease.

Again, the relative immunity of certain coloured races is comprehensible as their nature and climate are not likely to permit them to expose themselves overmuch to strain and overwork.

Realizing in this way the origin of tabes the physician has valuable indications for treatment, at least as far as prophylaxis is concerned. Now for the practical application of this theory. One must reckon with the possibilities of exhaustion wherever it has once shown itself. The patient must have rest and be guarded against overexertion, and at the same time his general condition and metabolism improved if possible. Of course, in cases of excessive obesity this should be reduced before the treatment is undertaken.

As a matter of routine the patient is told, and it must be impressed on him, to empty the bladder every three hours at least whether it seems necessary or not. The habit is very quickly acquired and in this way the bladder itself, and the nervous apparatus in connection, are saved from strain and exhaustion. Practically this has been found to save the patient form the distressing incontinance too often seen, thus bearing out the truth of Edinger's theory. The optic nerves also should be guarded against every strain, errors of refraction should be corrected and the eyes shielded from the glare of the sun in summer or winter by coloured glasses,—the patient should be warned against straining the eyes in any way.

During the treatment, where it is possible, these patients are ordered massage and faradic stimulation of the muscles on alternate days, simply to take the place of exercise in stimulating metabolism without the fatigue consequent on a relative amount of exercise.

In the hospital one has often noticed that patients who at first could not bring the index finger accurately to the nose with the eyes closed. after their first surprise at their failure to do such an apparently simple movement, practiced it with excellent results, and one would say. "That is scarcely a faïr test because the patient has practiced it." To

Frankel must be conceded the honour of seeing with the understanding eye and using this clinical fact to overcome the ataxia, not only in the arms but in the legs. These exercise are simply the practice of various movements by the ataxic limbs, at first, at least, under the guidance of the eyes until they become re-educated. I propose, then, with your permission, Mr. President, to have this patient go through some of these exercises.

First, those in the recumbent position. We have here two sets of apparatus which are the most useful among many. The patient's head should be raised by a wedge-shaped cushion so that he can see his feet and at the same time be quite comfortable. This first exercise is simply one of co-ordination in extension and flexion of the legs and may be varied indefinitely. The tendency for these patients is to allow the leg to fall out in abduction.

The patient should be told to keep the foot dorso-flexed in this way overcoming to a certain extent the hypotonia of the great calf muscles. First the patient should place the heel in the most distal hole of the board and then by means of flexion of the knee, drawing the foot along the board, place it in the next distal hole, and so on first one leg then the other; or they may be alternated or both work together.

Next, the hip should be more flexed the foot being raised off the bed, then extended and the heel placed in the next hole. By way of variety a halt may be called in the middle of this movement and the leg held steady in this position for a moment. This is difficult and tiring and should not be attempted till the patient has had some practice. Applying Edinger's theory again, we must avoid tiring the patient, otherwise we produce an increase in the symptoms rather than an amelioration, this has been proved clinically. It is thus necessary for the medical man to supervise these exercises carefully himself in order to avoid fatigue, as many tabetics owing to their loss of sensibility do not appreciate fatigue as readily as normal individuals. It is therefore necessary to take the pulse before and during the exercises. It will be found in cases of extreme ataxia to rise rapidly from normal to 120-130, especially at first when the patient is unaccustomed to the exercises. A rest must be given till it comes down to normal again. It must also be remembered that the exercises are for co-ordination and not to increase muscular power, therefore any exercise that requires much strength and is of no proportional value from the point of view of co-ordination should be avoided as harmful.

Another useful apparatus is No. 2. The idea here is for the heels to be placed in these notches, then one leg to be flexed at both thigh and

knee, being again extended, and this must be done slowly, the heel is then put into the next notch. This exercises, the co-ordination not only of the flexor and extensor groups, but of the abductor and abductor groups as well. These should also be varied frequently. It is well not to allow a patient to go through one exercise more than four times lest he wearies of it and does it negligently; keep changing them in order to keep his attention. This is a very important part in the re-education.

Exercises in the sitting posture. In patients who are unable to walk such exercises as flexion and extension of the thigh, especially adduction of the thighs, placing the foot on the floor firmly, etc., extending and flexing the knee, placing the feet in footprints marked on the floor. The patients should be fully dressed and wear stout boots in doing these exercises.

In every case, however, we should practice such important movements as rising up and sitting down. In severe cases the attempt to rise from a chair is very awkward. The patient makes futile efforts by moving the body in one way and another, but it seems not to occur to him to make the necessary movement of drawing his feet back and under his body and bending his body forward so that the centre of gravity comes in front of the ankle joints, as soon as he is reminded of this he usually learns to get up within a few minutes. When sitting down the patients simply let themselves fall into the chair whenever they try to sit down without leaning on the arm rests. This is the result of neglecting to bend the body forward while flexing the knee and hip joints. These movements may be practised in connection with the walking exercises.

For these exercises I have had this strip of linoleum marked out in longitudinal and transverse lines to represent an ordinary long step of 28 inches. This has been subdivided into half and quarter paces. At either end there is a diagram for teaching the patient to turn, a movement in which they usually have a good deal of trouble.

Patients should be lightly dressed. Women should wear Knickerbuckers at first and all should wear high laced boots to strengthen the ankles.

There is always a tendency for these patients to try and walk too fast, this, and a tendency to outward rotation of the legs must be corrected. He must walk slowly and carefully, watching his feet and putting his toes just to these transverse lines. It is well to start with quarter or half paces only taking a full pace when more proficient.

Side stepping also may be practised on this diagram and it is a good thing to have several patients practising at the same time so that they may learn to avoid each other readily, as one has to in the street.

Later the patient should practise walking with his eyes directed to the floor some distance in front of him, and later with them fixed on the horizon. In very severe cases it might be necessary to have a strong belt with handles on it so that attendants may support the patient without grasping his body.

These exercises should be undertaken twice a day, not oftener; in the morning after the massage or the electrical treatment, the exercise in the recumbent posture; in the afternoon the walking exercises. The exercises for the upper extremities are on the same principle and I will not take up the time of the meeting with them. As I have said the results are excellent as a rule, especially in patients who have been accustomed to take active exercise and who are determined to get well. One sees improvement not only in the movements of the limbs, but in sensation generally and in the pains; both these patients who had severe pains, have been practically free from them since their course of treatment. These are not isolated cases. The results are more or less permanent if the patient's occupation does not entail constant overstrain. In any case, if the ataxia does increase again, re-education a second time is always more readily and more quickly carried out. Optic atrophy with blindness is not an unsurmountable obstacle to this treatment if the upper extremities are not ataxic. If the sense of position in them is not lost, with the hand placed on the thigh, even without visual aid the patient can guide the lower extremities in the various movements.

SOME CLINICAL OBSERVATIONS ON EPIDEMIC CEREBRO-SPINAL MENINGITIS.

BY

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The large number of cases of Cerebro-spinal Meningitis occurring in the hospitals of Montreal during the past winter; the prominence given the disease in the recent outbreaks in New York, Dublin, and Glasgow; the universal interest which some of these cases present; as well as the excellent work which has recently been carried out on this disease, have induced me to bring this subject before you.

Although we have been fortunate enough to escape anything of the nature of an epidemic in this country, we have had a large number of sporadic cases, usually appearing singly, but occasionally two or three members of a household have been attacked simultaneously.

I have accumulated reports of 46 cases from the Montreal General Hospital and Royal Victoria Hospital reports during the past eight

years, and my remarks are based on this series. No case has been accepted as evidence unless either the meningococcus has been isolated from lumbar puncture by a competent bacteriologist, or the autopsy showed the characteristic lesions and the specific organism.

During the past year we have had 26 cases of epidemic cerebro-spinal meningitis in the Royal Victoria and Montreal General Hospitals.

Season.—With regard to the season of the year, the winter and spring months show the largest number of cases, the month of May heading the list. Occasional cases occurred in the summer months, the only month in which the disease was absent being September.

Age.—Koplik reports that in the New York epidemic the greatest frequency in age was in children under two years. Councilman in Boston, found the greatest frequency between twenty-six and thirty years. Westenhoffer, out of over 3,000 cases in the recent epidemic in Silesia reports 90 per cent. under fifteen years of age. In our series the largest number of cases occurs between the years ten and twenty. Arranged in decades the ages are as follows:

0—1 year	1
1—10 years	14
11—20 "	16
21—30 "	6
31—40 "	4
41—over	4

The youngest patient was seven months old, and nursing at the time. The oldest was 52.

Sex.—10 cases females, 36 males.

The Mode of Onset.—The most prominent feature of the onset in this series was its sudden and abrupt nature. This is so evident that definite mention is made of the suddenness in 24 cases (52 per cent.). In some cases patients are first affected while at work, or children while at play or school. In four cases, however, of this series special mention is made that the onset was not sudden but gradual. Of the initial symptoms two stand out in much greater frequency than the others: (1) vomiting, (2) headache.

(1) Vomiting was nearly always present (74 per cent.) of cases. It was frequently almost continuous, lasting in one case three days, but it is noted that in the most severe type of the disease vomiting may be absent entirely, as happened in three cases of this series.

(2) Headache and pain in the neck were the next most frequent symptoms of the onset, and were very frequently present (69 per cent.)

of cases. The pain is usually confined to the occipital region and the neck, and tenderness of the spines of the vertebræ may be present.

Of the other symptoms of onset, rigidity of the neck, and retraction of the head set in sometimes as early signs, more frequently not till twenty-four or forty-eight hours had passed.

Chills are not uncommon at the onset and occurred in 22 per cent. of this series. Chilliness is still more frequently seen without a definite rigor. Convulsions ushered in the attack in three cases, not children (6 per cent.).

Consciousness may be lost within twelve hours, and coma and delirium may be early symptoms in the more virulent cases.

In addition to the above the usual signs of onset of any toxæmia may be noted, as, pains all over the body, anorexia, weakness, photophobia, constipation and intolerance of sound.

There are two other symptoms occurring early, to which only a few of the text books refer, but which are very frequent. These are, excessive irritability and restlessness. In children these symptoms are of less value, but in adults deserve more attention.

A virulent type of the disease with death on the third day may set in with a subnormal temperature and the temperature remain down. A slow pulse was present in one case, where with a temperature of 100 4-5 the pulse was 66.

Just as in pneumonia, cerebro-spinal meningitis may set in with catarrhal symptoms and coryza. Rarely paralysis or paresis may appear as early symptoms.

Symptoms.

Rigidity of the Neck.—This was a very constant and early symptom of the series and was noted in every case but two (96 per cent.). This finding agrees with Koplik's experience in the New York epidemic, where he also noted its occasional absence in the severe fulminant type of the disease. Osler has found this rigidity of the neck absent in the pneumococcus meningitis.

All degrees of rigidity may be present, from the slight stiffness where the patient's chin cannot be made to touch the chest to complete opisthotonos, which was present in two cases. This rigidity may not be limited to the vertebral muscles, but may extend to the other muscles of the trunk and extremities and produce a general spastic condition.

Retraction of the Head.—Another very constant symptom in our series was "retraction of the head." This usually occurs with regidity of the neck, but the latter may be present without the former. It was

noted in 83 per cent. of this series. It is frequently absent for the first twenty-four to forty-eight hours or more. In many cases attempts to straighten the head cause

(1) Pain referred to the neck and occiput.

(2) Dilitation of the pupils; probably due to irritation of the cervical sympathetic. This latter symptom is useful in differentiating it from the retraction found in pneumonia and gastro-enteritis in children.

Headache is usually the first symptom of the onset. Headache is always an early sign and was reported absent in only one case of our series (98 per cent.). It is frequently general at first, but rapidly becomes localized in the occiput; and the pain extends down the neck and spine. Usually severe, it may be agonizing in character, and is frequently accompanied by giddiness.

Delirium is another frequent symptom and is often early in its appearance. It may be found within six to twelve hours of the onset; in other cases it does not appear till later in the disease. It was present in 60 per cent. of this series and showed all variations from the mild form with a little wandering only at night, to the active, violent form with constant tossing and restlessness. With the onset of profound stupor and coma, the delirium may disappear.

The mental condition of the patient in a severe case presents, within a few hours of the onset, a certain dull, dazed condition, which increases to a semi-conscious state in which the patient seems in a dull reverie, but from which he can always be aroused when addressed. Later profound coma makes its appearance, gradually deepening till all response to stimulation disappears.

Coma was recorded in 67 per cent. of our series. In the virulent fulminant cases profound coma may set in early and is always of grave prognosis.

Hyperæsthesia of the Skin is frequently found present, and is most marked early in the disease. From my personal experience it has been a very constant symptom, but disappears with the onset of profound coma. It is probably caused by an inflammatory irritation of the nerve roots. In this series of 46 cases it was noted present in 11, in 4 it was absent, and in 31 it was not reported at all.

Muscular Twitchings occurred in 30.4 per cent. of this series. No group of muscles seem to have been affected with any degree of constancy, but twitching of the arms and legs were most frequent. The muscles of the face and calves of the legs were also mentioned.

Convulsions.—General convulsions, as previously stated, are not uncommon at the onset and occurred in 10 per cent. of this series.

Though Koplik found them more frequent in children, in none of our cases were the children very young, eight years being the youngest. They may come on just before death. Coming on late in the disease convulsions always suggest the possibility of hydrocephalus, with a view to lumbar puncture.

Paralysis and Paresis.—Apart from the affection of the ocular muscles paralysis was not frequently seen, being present in only 6 per cent. of this series. One side of the face was most often affected, but a definite hemiplegia with aphasia may be seen. These cases may present the typical picture of cerebral hæmorrhage, but the associated leucocytosis and lumbar puncture will clear up the diagnosis.

Paresis may also occur in the face, or one or more extremities. Gowers explains hemiplegia in these cases as due to a focus of intense inflammation over the motor area of the brain.

Reflexes.—The finding of the reflexes, both superficial and deep, will vary according to the stage of the disease when the examination is made. In early cases the reflexes are usually present or increased but are apt to disappear later on. Strumpell found the tendon reactions absent in five of 32 cases; in three they disappeared to reappear in convalescence. Babinski's reflex may be present in meningitis and Koplik reports it in 4 of 25 cases in the New York epidemic. In our own series the reflex findings are very variable.

Kernig's Sign.—In 1882 Kernig of St. Petersburg found a symptom which he thought pathognomic of meningitis, namely, the inability to extend the leg when the thigh was placed at right angles to the trunk. Since his publication our findings have compelled us to modify this view and we must state that Kernig's sign is not pathognomic of meningitis, being found also in pneumonia and typhoid fever, and may be present at the very onset of any illness in young children, but is nevertheless a very valuable symptom of meningitis.

In this series Kernig's sign was present in 33 cases of 46 (71 per cent.) and was definitely absent in two cases (1 per cent.) and was not reported in the remaining 11 cases. It was frequently absent at the onset, and did not appear till from the 2nd to 5th day. Its duration is variable, the longest case showing its constant presence for 30 days. Kernig states it was present in convalescence, but in this series the symptom always disappeared at the onset of convalescence.

Of the two cases in which Kernig's sign was absent, one was a fulminant case which died in 18 hours and the other a mild form where the patient recovered.

Gowers in his last edition 1907 does not mention this symptom in his article on Epidemic Meningitis. As to causation—the theory that

the phenomenon is caused by an irritable condition of the posterior nerve roots leading to spasm of the muscular fibres supplied, seems most acceptable.

Special Senses.

Eyes.—Of the symptoms referable to the eyes, strabismus was most common and occurred in (19) cases of 46 (41.9 per cent). The external rectus was affected in 13 cases (26 per cent. while the other muscles were involved in six cases. (13 per cent).

Photophobia was reported in 10 cases (21.7 per cent.) and conjunctivitis in five cases (10.8 per cent). In three of these it was purulent. The meningococcus has been isolated from the conjunctival sac. Nystagmus was present in 5 (10.8 per cent) cases and ptosis in 3 (6.5 per cent). Inflammation of the interior of the eyeball seems to have been rare.

Changes of the optic papilla were seldom noted, only three cases of neuritis or of actual atrophy are recorded.

Ears.—The only symptom reported referable to the ears was deafness which occurred in eight cases of this series. In 6 (13 per cent.) otitis media was present either double or single. Deafness in the other two cases was unexplained.

Skin Rashes.—This series presents the usual varieties of rashes, including erythema, herpes, petechiæ and purpura.

Roseola like that which occurs in typhoid, and which is described by Stillé as so frequent in the Massachusetts epidemic, did not occur in any case of this series.

Glancing over the various forms, the most striking feature is the relatively frequent occurrence of purpura. In some one of its various forms, it occurred in 15 cases (32.6 per cent.). The frequency of its occurrence varies with different epidemics. In some it is conspicuous by its absence, in others, as in the Dublin epidemic of 1866-67, it was so frequent that the name "Malignant Purpuric fever" was given it. These cutaneous hæmorrhages vary in size from that of a pin-point to a 50c piece and several may coalesce and form large discolored areas. They are most frequent on the trunk and extremities and are said to occur in the most severe cases. In our series with a total of 15 cases with cutaneous hæmorrhages 13 died; although two cases with extensive purpura recovered. The ecchymosis usually appears early in the attack but in one case came out just before death on the 66th day of the disease.

Of the varieties of skin rashes, herpes appeared in 15 cases (32.6 per cent.) in 13 of which the lips, alæ nasi and chin were affected, but in

two cases definite crops appeared on the buttocks. Occasionally the rash is bilateral. Different epidemics show variations with frequency of herpes. Von Zeimsen found herpes more frequent in meningitis than in any other disease. Lichtenstein found it present in 26 of 29 cases, while Stillé and Sydow report it in only 6 of 32 cases. Herpes usually appears in the first five days, but there may be successive crops throughout the attack. The contents have been examined repeatedly without finding the meningoccus present.

Erythema is not uncommon at the onset, but may only last a few hours, to be followed by petechiæ. It was noted in three cases of this series. Taches cérébrales was mentioned in two cases.

Spleen.—The occasional confusion of meningitis with typhoid fever led us to note the condition of the spleen in this series. In only two cases was the spleen distinctly palpable, and one of these cases gave other signs of the condition being one of general septicæmia, when we would expect the large, soft spleen of that condition. In 34 cases the organ was reported not palpable, and in 9 cases the condition was not noted either way.

From these figures then we may conclude that a palpable spleen is extremely rare in epidemic cerebro-spinal meningitis, and, if present, suggests a general meningococcus septicæmia.

The Blood.—The examination of the blood in this series serves merely to emphasize the already existing data on the subject. All authorities agree on two points,— (1) that there is in the vast majority of cases a well marked leucocytosis at the onset and early in the disease; (2) that the increase is chiefly in the polymorphonuclear variety of white cells.

Of thirty cases in which a white cell count was made, 26 (86.6 per cent.) showed a leucocytosis of 10,000 or over. In 4 cases the white cell enumeration was below 10,000, varying from 8,400 to 9,000.

In those cases which become chronic we may see a gradual reduction to normal in the white cell count, so that we may infer that the leucocyte count is of definite value if taken early in the disease, but if taken only after the case has become chronic is of doubtful value. As to the prognostic value of the white cell count, I find that of nine cases having over 30,000 white cells, seven died and two recovered; which would suggest a more serious outlook where there was a high leucocytosis; however, the number of cases is too small to draw definite conclusions. Of the four cases with a white cell count below 10,000, two died shortly after admission and two recovered. The hæmoglobin and red cells show no constant variations.

Blood Cultures.—Osler reported the first case in which the meningococcus was isolated from the blood during life, and subsequently several have confirmed this finding.

This seems to be only exceptionally the case, and limited to that class of cases characterized as acute meningococcus septicæmia, unless our methods of culture are still faulty.

Urine.—The most evident fact apparent after glancing over the examination of urine of 38 cases of this series is the great frequency of retention. This occurred in no less than 12 cases (31.6 per cent.). It may occur as early as the first day of disease, hence the caution necessary in these cases. The retention usually gives place to incontinence. This was present in 15 cases (39.4 per cent.), and is especially frequent in those cases which become rapidly comatose.

The urine is of high specific gravity, 17 cases (44.7 per cent.) showed a trace of albumin; six cases (16 per cent.) showed sufficient sugar to reduce Fehling's solution, and one case as much as 1.54 per cent.

Blood was present in two cases and pus in three. One of the cases in which blood was present in the urine was conspicuous in having petechiæ and large purpuric spots on the trunk and extremities, evidence of a hæmorrhagic tendency.

Lumbar Puncture.—Quincke, who proposed the operation of lumbar puncture, did more to clear up the origin and diagnosis of this disease than any other. The examination of cerebro-spinal fluid chemically, bacteriologically and microscopically has afforded us much positive data for diagnosis; until at the present day no diagnosis of this disease with its protean manifestations can be accepted as absolutely positive during life, without lumbar puncture being performed.

The objects to be obtained from lumbar puncture are:—

(1) To establish a diagnosis of meningitis.

(2) To determine the nature of the meningitis present.

(3) To relieve pressure caused by an excessive quantity of cerebro-spinal fluid.

In this series of 46 cases lumbar puncture was performed in 42 cases. In 36 (85.7 per cent.) the diplococcus meningitis intracellularis was found, sometimes in pure culture.

The fluid was always more or less turbid, in some cases being very purulent, and was usually under considerable pressure. Apart from the question of diagnosis, lumbar puncture is believed by many clinicians to be of undoubted value in the treatment of the disease in the early stages.

The case reports of this series were carefully examined with the object of finding out whether definite improvement did or did not

occur after lumbar puncture. In 16 cases the results were mentioned, and in 9 of these it was definitely stated that no relief followed lumbar puncture.

In seven cases there was improvement, described as rapid or marked in two cases, while the others are indefinitely described as "temporary relief followed," or "slight improvement in temperature and pulse, etc.", and so on, so that as a therapeutic measure I think we must conclude that lumbar puncture, even though it is repeated, is of little therapeutic value in the majority of cases, but that it is occasionally followed by definite relief of symptoms.

There is one condition however, in which lumbar puncture gives certainly brilliant results, and that is where we have an excess of cerebro-spinal fluid causing symptoms in the condition referred to as hydrocephalus. This usually comes on during convalescence, and may be recognized by the mental dulness, drowsiness, dilated pupils, more rapid pulse and, perhaps, convulsions.

Koplik has described another sign on which he places great emphasis, viz., a hollow tympanitic note on percussion over the horn of the lateral ventricle known as MacEwen's sign.

These symptoms are usually rapidly relieved by withdrawal of cerebro-spinal fluid, but may return as the fluid re-accumulates.

We have had no opportunities in this series to corroborate these results in hydrocephalus.

Microscopical examination of cerebro spinal fluid in this disease shows us that the turbidity of the fluid is due to the presence of leucocytes, of which two varieties may be distinguished, (1) polymorphonuclears, which are present in large numbers in very definite preponderance over the second variety; (2) the mononuclears. As the case becomes chronic the mononuclears tend to increase and the polymorphonuclears to decrease, until later both forms may disappear and the fluid becomes quite clear. The primary object, however, of the microscopical examination of cerebro-spinal fluid is to discover the presence of the diplococcus, whose presence is necessary to render positive the diagnosis of epidemic cerebro-spinal meningitis. The characters of the organism and its methods of culture I leave to the bacteriologist to describe.

Complications.

In order of frequency the following complications were found in this series:—

Otitis media	6	13.0 per cent.
Acute broncho penumonia	6	13.0 "

Arthritis	4	8.7	per cent.
Acute purulent pericarditis	3	6.5	"
Acute cystitis	3	6.5	"
Mastoiditis	2	4.3	"
Hydrocephalus	2	4.3	"
Chronic phthisis	2	4.3	"
Bedsores	2	4.3	"
Furuncles	2	4.3	"
Septicæmia	2	4.3	"
Acute endocarditis	1	2.2	"
Parotitis (double)	1	2.2	"
Pyonephrosis	1	2.2	"
Sinus thrombosis	1	2.2	"
Cerebral abscess	1	2.2	"

Of the above I would especially bring before your notice the arthritis, acute purulent pericarditis and parotitis.

Arthritis.—Both old and modern authors mention joint disease as a rather rare complication of cerebro-spinal fever.

Two definite forms may be found:—

(1) Group of cases characterized by pain, redness, swelling œdema, *i.e.*, the typical arthritis of any toxæmia which rapidly subsides without injury to the joint.

(2) Those cases which go on to pus formation, with all the characteristics of the septic joint.

Of the first group little may be said, they resemble the rheumatic joint in appearance, and both large and small joints may be affected, including wrists, elbows, hands, knees and hips.

Of the second group they point rather to a local manifestation of a general septicæmia.

Osler refers to a case where the meningococcus was isolated from pus of a joint and also from the blood steam during life.

In our series arthritis occurred four times (8.7 per cent), three of these in the knee joint and one in elbow. In one case the pneumococcus was cultivated from the pus of joint.

The other three cases rapidly subsided under ordinary treatment. Acute pericarditis gave no sign during life and was only revealed at the autopsy. Parotitis is a very rare complication of this disease.

Course and Termination.—The course of the disease in this series reveals examples of each of the various classical types mentioned in the literature—but that group of cases described as Fulminant or Foudroyante is very numerous. By this term we indicate those cases which

set in with serious symptoms coming on rapidly, with loss of consciousness, coma and death within a few hours or days. There were 14 of these in this series, and 16 lived less than five days. Mild forms have been rare.

Mortality.—The excessively high mortality of 71.7 per cent. for the series, as compared with 73.5 per cent. in the New York epidemic of 1905, shows how powerless we still are to cope with this disease, and how acceptable the results of therapeutic research will be. There is surely here an excellent field for work, which, whether it be along the lines of a therapeutic serum, at which Flexner is at present at work in the Rockefeller Institute in New York, or whether it be from the application of Wright's opsonic theory, as has been carried out in Dublin and in the Montreal General Hospital here, will be equally acceptable to the profession at large.

I take this opportunity to thank the management of the Royal Victoria and the Montreal General Hospitals for the use of the records of these institutions.

RENAL TUBERCULOSIS.

BY

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During the past two years we have been favoured with the opportunity of observing a number of cases of tuberculosis of the genito-urinary tract. These cases comprise a number of cases of tuberculous epididymitis and orchitis, two cases of tuberculosis of the seminal vesicles and prostate, several cases of tuberculosis of the kidney, discovered post mortem and forming part of a generalized tuberculosis, and finally 12 or 13 cases of tuberculosis of the kidney which deserved clinically, at least, to be considered primary in the kidney. They represent the cases which have occurred in the wards of the Montreal General Hospital during the period mentioned, with one or two cases which have occurred elsewhere, and it is these cases to which I wish to call your attention.

One case, where the symptoms pointed to a tuberculous cystitis, and where tubercle bacilli were demonstrated in the urine, was not more carefully examined; we have therefore excluded it from this series, though it is not improbable that the case also would have corresponded with the remaining twelve where a sufficiently thorough examination was carried out.

To place our deductions as quickly as possible before you let me first detail the method of examination we have followed, the results we have obtained from such examination, and finally, those conclusions which we feel justified in making as a result of these findings.

We believe that we have received great assistance in the diagnosis of these conditions through the use of the cystoscope and ureteral catheter and have employed them in all the following cases, and it is more especially in regard to the use of these instruments that I wish to ask your attention. The cystoscope alone has rendered us useful service, but, except in one case, we have also separated the urines by catheter. Where the bladder has been extensively involved this has not been easy, the bladder has been extensively involved this has not been easy, but it has been simpler in the earlier cases, and it is in these early cases, when an early diagnosis is of vital importance and when diagnosis under our present methods is difficult if not impossible, that this has rendered us most signal assistance.

You know it is now fairly well established that in health each kidney secretes a urine almost identical with that of its fellow. This is empirical, both from animal experiment and from a large number of cases observed clinically. On the other hand, when one kidney is diseased we find the functions of that organ affected; its secreting power lowered, and the urine consequently of poorer quality than that of its fellow kidney. As I hope to show you in the following cases (V and XI), it requires destruction of but a small amount of kidney tissue to affect a change in the urine.

The functional activity of the kidney we measure by comparing the two urines obtained by catheter as to their acidity, specific gravity, quantity of urine present, presence of albumen, quantity of sugar present after the injection of phlorizin, and the depression of the freezing point. In addition, careful microscopic examination is invaluable.

Let me illustrate by taking a normal case, a case of floating kidney. The common catheter urine, and the urine from the right and left kidney compared as follows:—

TABLE I.

Common.		Right.		Left.	
Reaction:	Acid.		Acid.		Acid.
Sp. G.	1010		1011		1011
Urea:	.8 per cent.		.8 per cent.		.8 per cent.
Albumen:	0		0		0
Sugar:	0		0		0
Microscopic:	Epithelium.	Microscopic:	Epithelium.	Microscopic:	Epithelium.

All three are practically identical—or, take a case of nephritis:

TABLE II.

	Right.	Left.
Reaction :	Acid.	Acid.
Sp. G.	1037	1037
Urea :	.2 per cent.	1.8 per cent.
Albumen :	A trace.	A trace.
Sugar :.	1.25	1.00
Freezing point :	—1.8°	—1.9°
Microscopic :	Hyaline casts.	Hyaline casts.

The differences present are evidently errors in manipulation and estimation, as they vary now on one side now on the other.

In the first instance both kidneys were normal, in the second both equally diseased. Now, let us apply this hypothesis to the following cases:

Case I.—Male, æt. 40. (Dr. Armstrong), 23rd February, 1907. He had been ill three years, the earliest symptom being hæmaturia. About one year after the onset his left epididymis became nodular. He was emaciating. Pus blood and tubercle bacilli were found in his urine. We could not determine whether his bladder or kidneys were the site of the disease. Cystoscopic examination cleared the picture. An ulcer was present about the left ureteral orifice and a comparison of the urines was as follows:

TABLE CASE I.

	Right.	Left.
	Clear.	Turbid.
Sediment:	Mucoid.	Purulent.
Sp. G.	1009	1004
Albumen :	——	Present in quantity.
Urea :	1.6 per cent.	.5 per cent.
Microscop.	Epithelium : Few blood cells.	Pus, blood, tubercle bacilli.

The left kidney was indicated and operation confirmed our opinion.

This patient died some months later of a miliary tuberculosis. The autopsy showed that the original focus of disease had been removed with the kidney as the lesions present were all of the acute miliary type and no focus comparable in age with that in the kidney could be discovered on careful search. This would support the view that not only does the kidney play an important part in tuberculosis of the genito-urinary tract, but that it may be the primary focus in the body.

Case II.—Female, æet 39. (Dr. Elder) December 18th, 1905. For six to eight weeks she had suffered with pain in the back. She was

emaciating. Her urine contained pus but no tubercle bacilli. A mass could be felt in the abdomen, right sided. The nature of the pyonephrosis could not be determined. The cystoscope showed an ulcer about the right ureteral orifice and this suggested tuberculosis. The urines were compared as follows:

TABLE CASE II.

	Right.	Left.
Reaction:	Acid.	Acid.
Sp. G.	1015	———
Urea:	1.6 per cent.	1.8 per cent.
Albumen:	Present.	A trace.
Sugar:	0	Present.
Microscop.	Pus in considerable quantity, no tubercle, many cocci.	No pus, no bacilli.

Nephrectomy was performed, and a large pyonephrotic kidney removed. Microscopical examination proved this to be tubercular.

Case III.—(Dr. Finlay). Was a patient (male) suffering from pulmonary tuberculosis, and who developed hæmaturia. Bacilli were found in the urine and separation of the urine showed both sides to be affected.

Case IV.—R., male, æt 35. (Dr. Armstrong). Dec. 26, 1906. Had suffered severely from frequency for six months, also from pain in the back, pain on micturition and loss of weight. Blood, pus and tubercle bacilli were present in the urine. This was a difficult case as the bladder held but little fluid and the patient suffered severely, yet without a minute examination we could not tell where the site of the disease was, indeed, the patient had come some distance in order to have the lesion localized if possible. The cystoscope showed an ulcer about the left ureter, and a severe cystitis. The urines were compared as follows:—

TABLE CASE IV.

	Right,	Left.
Reaction:	Acid.	Neutral.
Sp. G.	1025	1008
Color:	Yellow.	Pale.
Urea:	1.7 per cent.	.3 per cent.
Albumen:	A trace.	Large quantity.
Microscop.	Calcium oxalate xtls. few pus cells.	Pus in quantity tubercle bacilli.

Evidently the left kidney was indicated.

Nephrectomy gave us a well marked tubercular kidney (marked IV). The patient has improved wonderfully, though his bladder still causes him some inconvenience.

Case V.—Male, æt 22. (Dr. Armstrong), 9th February, 1907. This patient had suffered from frequency for eight months. He had lost weight. Seven months after the onset his left epididymis became swollen and tender. His urine contained pus and tubercle bacilli. Cystoscopic examination showed no ulceration in the bladder, but distinct œdema about the left ureteral orifice with the presence of one or two doubtful tubercles. The urines were compared as follows:—

TABLE CASE V.

Common.		Right.	Left.
Reaction:	Acid.	Acid.	Alkaline.
Color:	Pale.	Clear.	Turbid.
Sediment:	Flocculent.	Mucoid.	Flocculent.
Sp. G.	1015	1017	1013.
Urea:	——	2.2 per cent.	1.3 per cent.
Freezing Point:	——	—1.3°	—.9°
Microscop.	Pus, tubercle bacilli.	Epithelium, no bacilli.	Blood, pus, tubercle bacilli.

We were able to locate the disease on the left side and state the right side to be normal. As may be seen the disturbance in function was but slight. Nephrectomy gave us a kidney similar to *Case XI,* where but one calex was affected and not more than 8 c.c. of the kidney tissue involved, in fact, it is worthy of some remark that so small a lesion could so seriously affect the renal function.

Case VI.—McD., male, æt 40. (Dr. von Eberts) 23rd February, 1907. This patient suffered severely from pain in the back, frequency and pyuria. He had lost weight. A small mass was indistinctly palpable in the right side of the abomen. The cystoscope showed a normal left ureter, but no sign of the right could be found. The left was catheterized, and the urines so obtained, compared as follows:—

TABLE CASE VI.

Common.		Right.	Left.
Color:	Turbid.	Turbid.	——
Reaction:	Acid.	Acid.	Acid.
Sp. G.	1025	1010	1010
Albumen:	Present.	Present.	0
Microscop.	Pus.	Blood, pus, tubercle bacilli.	No pus, no blood.

The right side was indicated. Operation gave us a hard, small, fibrosed, tubercular kidney (marked VI). The point of interest here lies in the ureter which was a hard, firm cord (with very small lumen), as thick as a No. 15 E sound and stretched very taut, pulling the kidney down and the side of the bladder up. The small lumen and the displacement due to the tension accounted for the difficulty in locating the orifice.

This patient was relieved of his symptoms and gained greatly in weight. He has of late, however, escaped observation.

Case VII.—N., male, æt 60. (Dr. Shepherd) 30th October, 1906. He had suffered from hæmaturia for two years and from frequency and dysuria for a shorter period. He too had lost weight. His symptoms pointed to a cystitis. The cystoscope showed a small slough and an ulcer on the left side of the bladder. We made a diagnosis on the presence of tubercle bacilli, of tuberculous cystitis.

The patient was treated by tuberculin under Dr. von Eberts (with observations as to his opsonic index) with very marked improvement. In February, four months later, a cystoscopic examination showed no ulceration present. Bacilli were, however, still present, and we now came to the conclusion, which we should have arrived at in the beginning, viz., that the disease was in the left kidney rather than in the bladder. The comparison of the urines here is as follows:—

TABLE CASE VII.

	Common.	Right.	Left.
Color:	Turbid.	Clear.	Turbid.
Sp. G.	1025	1027	1025
Urea:	2.5 per cent.	2.6 per cent.	2.3 per cent.
Albumen:	Present.	——	——
Microscop.	Pus, blood, tubercle bacilli.	No pus, no blood.	Pus, blood, tubercle bacilli.

Case VIII.—C., female, æt 24. (Dr. von Eberts) 18th February, 1907. She had suffered for one year with pain in the left side, pyuria and the gradual loss of weight and strength. A mass was palpable in the left side. The left ureteral orifice was ulcerated, the urines as follows:—

TABLE CASE VIII.

	Common.	Right.	Left.
Reaction:	Acid.	Acid.	Acid.
Color:	Turbid.	Clear.	Very turpid.
Sp. G.	1013	1022	1007

Urea :	1 per cent.	2 per cent.	.5 per cent.
Albumen :	A trace.	A trace.	Large quantity.
Sugar :	——	Present.	None.
Microscop.	Pus, tubercle, bacilli.	No pus.	Pus, blood, tubercle bacilli, diplococci.

At operation a large caseous kidney (marked VIII) was removed. The patient made an uninterripted recovery, and when last seen, two months ago, was apparently in the best of health.

Case IX.—B., female, æt 35. (Dr. Elder) 4th September, 1907. This patient's illness began with pain in the side and attacks of renal colic, three months before observation. The usual loss of weight and pyuria were present. The bladder showed no ulceration, but definite œdema about the right ureteral meatus. The urines were as follows:—

TABLE CASE IX.

	Right.	Left.
Reaction :	Acid.	Acid.
Sp. G.	1007	1008
Sediment :	Flocculent.	Clear.
Urea :	1.2 per cent.	1.5 per cent.
Albumen :	Present.	
Microscop.	Pus.	No pus.

A diagnosis of right sided tubercular nephritis was made. Operation gave us an early tuberculous kidney (marked IX) with a small calcareous incrustation in the pelvis which accounted for the renal colic.

This patient is still under observation, and though all urinary symptoms have ceased, some obscure focus apparently still exists.

Case X.—K., male, æt 25. (Dr. Shepherd) 14th September, 1907. He had been ill with pain in the perineum for three months, during which time he had developed a periurethral abscess which was opened in the outdoor department. He subsequently developed some febricula and was admitted to the hospital where routine examination showed the presence of pus in the urine leading to a more careful examination. Oedema of the left meatus uretericus was found and the urines compared as follows:—

TABLE CASE X.

Common.		Right.	Left.
Reaction :	Acid.	Acid.	Turbid.
Color :	Turbid.	Clear.	Alkaline.
Sp. G.	1018	1030	1004
Urea :	2.3 per cent.	4 per cent.	.5 per cent.
Albumen ;	Present.	0	Present.
Freezing point :	———	−2.68°	—.°
Microscop.	Pus.	Few blood cells.	Pus, few blood cells.

Tubercle bacilli were discovered and their presence confirmed by inoculating a guinea pig. The diagnosis of left sided tuberculosis was confirmed on nephrectomy. Progress up to the present has been excellent.

Case XI.—H., male, æet 21. (Dr. Armstrong) 14th August, 1907. He had noticed for a year severe attacks of hæmaturia. He had not lost weight or suffered otherwise. His urine, in addition to blood, contained some pus cells, otherwise physical examination was negative. The cystoscope showed a normal bladder, the ureteral catheter the following urines:—

TABLE CASE XI.

	Right.	Left.
Reaction:	Neutral.	Alkaline.
Color:	Pale, turpid.	Dark.
Sp. G.	1007	1025
Urea:	1.1 per cent.	3 per cent.
Albumen:	Present.	
Sugar:	X.	2 X.
Freezing point;	—.35°	—1.3°
Microscopic:	Pus, tubercle bacilli.	No pus or bacilli.

Evidently right sided tuberculosis.

Nephrectomy revealed a kidney which, on examination, showed but one small localized area diseased, the smallest focus of tuberculosis I have ever seen in a kidney. Again I wish to call your attention to the extent a small renal lesion has interfered with the kidney's functional activity. This patient has improved wonderfully though but two months have elapsed since operation.

Case XII—R., male, æt 18, 3rd October, 1907. Nine months previous to observation he had noticed hæmaturia. This was followed by frequency and dysuria. He was emaciated. A mass was present in the region of the left kidney yet all symptoms have pointed to the bladder. This on examination is somewhat contracted and shows an intense cystitis, though not tubercular in character. Both ureteral orifices are obscured by inflammation and œdema. Tubercle bacilli are present in the urine. The lungs are also affected.

I add this case, believing that here too the lesion was primary in the kidney, as no source of the hæmorrhage is now present in the bladder, and the kidney is definitely involved. Absolute proof is, however, wanting.

Let me now summarize a few of the more important points in these cases.

Three cases were in women, nine in men.

It is noteworthy that in one case the first sign of disease was a periurethral abscess, chronic in character with the greenish pus common in tuberculous infection, but which healed rapidly. Its true nature is therefore undetermined.

In three cases an epididymitis was present. In all three the history would lead us to believe that this occurred subsequent to the original renal infection.

In Cases I, IV, V, VII and XII—six cases—the symptoms pointed to disease of the bladder rather than to the kidney, yet in all the kidney was found at fault, and the symptoms of bladder involvement either disappeared or definitely improved after removal of the affected organ.

In five cases the bladder wall was ulcerated in the neighborhood of the ureter from the affected side, and in others the ureteral orifice showed a definite œdema. (In one case cystitis was so far advanced as to quite obscure both ureteral orifices.)

Tubercle bacilli were found immediately in ten cases. In one case it was necessary to confirm our findings by animal inoculation.

Three cases were not operated upon—one because of the marked improvement which took place under the use of small doses of tuberculin; two because the involvement of the lungs at the time of observation forbade radical treatment.

Apart from the involvement of the epididymis and the periurethral abscess already mentioned, these two cases, III and XII, are the only instances in this series where involvement of other organs could be made out. As far as we can rely on clinical evidence this would point to a primary renal tuberculosis in ten cases. One of these cases came to autopsy, and the findings post mortem—acute miliary tuberculosis—showed no lesion comparable in extent or age with that of the removed kidney. This also would point in the direction of primary renal disease.

From these cases it would seem that primary tuberculosis of the bladder is rare, that it is inferquently infected from the prostate or genitals and that, as a rule, it is secondary to disease in one or other kidney.

On looking for confirmatory evidence, I must confess my surprise at the number of men who have been insisting on this very fact, and who regard tuberculosis of the kidney as a blood infection, and further, as frequently a primary tuberculous infection.

The evidence of these cases is in favour of both, yet our definition of a primary renal tuberculosis perhaps needs modifying. Clinically,

it is primary, pathologically, it is not unlikely that the true primary focus lies in some obscure lymph gland, mesenteric, peribronchial, mediastinal, where you will, and I feel that for the present we must assume this position.

Rosving, Israel, Casper, Zuckerkandl, Kümmel, Ribbert, Orth, Vigneran, Tuffier, Fenwick, Kelly, Walker, and others, may be mentioned as holding similar views to those expressed.

Admit this position and the way of the surgeon becomes easier and, we think, the prognosis better. Early diagnosis is, however, necessary and we feel that the cystoscope and ureteral catheter offer us substantial aid in this respect. The cystoscope in demonstrating the presence of ulcers, tubercles or œdema amout the meatus uretericus or the displacement of this orifice due to the contracting ureter, the separation of the urines in showing substantial interference with kidney function.

To express these remarks in a word, if we can diagnose early, a unilateral primary renal tuberculosis, and remove it, our prognosis should be favourable.

In the present instances we have purposely refrained from drawing conclusions as to the ultimate result, as we feel that only observation over an extended period can justify such conclusions. Up to the present our results are encouraging.

INFANTILE SCURVY.

BY

W. F. HAMILTON, M.D.,
Physician to the Royal Victoria Hospital, and Lecturer in Medicine, McGill University.

"Fifty per cent. of the unrecognized cases of infantile scurvy seen in my consultation practice," said Heubner, "were already under the care of practitioners who were possessed of a literary knowledge of this disease." "For eight weeks," says Dock, of Ann Arbor, "a case with typical features of the above named disease had passed unrecognized through the hands of two physicians of considerable experience and more than ordinary ability."

The statements of the two clinicians, just quoted, prompt me to bring the subject of Barlow's disease before this Society this evening, by presenting first the reports of two cases, observed in the Royal Victoria Hospital, and then making a brief reference to the more important points in the diagnosis and pathology of this very interesting condition. The surgeon has, in some instances, regarded the complaints and signs

* Read before the Montreal Medico-Chirurgical Society, December 20th, 1907.

as explained by a fracture or a separation of the epiphysis, or attributed them to a sarcoma or osteomyelitis, for which operations have been undertaken. While the neurologist may be appealed to for a diagnosis of some cases, such as simulate neuritis or polio-myelitis, the aid of the ophthalmologist is sought particularly in those cases where the signs suggest a retrobulbar tumour or osteo-sarcoma of the orbit.

From the cases about to be described one may see how the eye symptoms dominated the picture; at all events the signs about the orbit compelled the advice of the specialist. It was after the late Dr. Buller felt satisfied that he could not explain the symptoms and signs present in one of his patients from the standpoint of ophthalmology that he requested me to see the child and to report upon his condition. Upon the examination then made our first case report is founded.

Case I.—A full term male child, eleven months old, was admitted to the eye department December 21st. 1903. In looking into his history we found that it had been found necessary to feed him artificially from his birth, and, as there was difficulty in finding a food that would agree, various changes were made. Modified milk, sterilized milk, Nestlé, Mellin, Allenbury and Wampole's foods were among those in requisition. The child at six months of age was very poorly nourished. At eight months a purplish discolouration with swelling appeared on the gums of the upper and lower jaws. It was at this time that his mother said he cut his first tooth. The gums did not bleed, except on one occasion, when they had been injured. The patient was very fretful, often crying as if in pain. At ten months the mother first noticed that he was much disturbed when his legs were handled, and about this time it was noticed that the ankles and thighs were swollen, the left more than the right. The swelling about the eye appeared about the same time, and, according to the mother, came on suddenly, with protrusion of the ball and duskiness of the upper lid. The arms were also swollen and purpuric spots were described upon the skin of both upper and lower extremities. The urine had been smoky for a week before the date of admission.

When admitted, the patient was found to present the appearances of profound anæmia and poor nutrition. The left eye was conspicuously prominent. There were swellings over the long bones, more marked towards the extremities. There was œdema, pitting on pressure. Manipulation of the limbs and pressure upon the swollen areas induced pain. Beading was seen bilaterally at the costo-chondral junc-

tion. The temperature was 99.6, the pulse 168. Examination of the blood confirmed the impression of the profound anæmia.

Erythrocytes	1,380,000
Leucocytes	15,600
Hgb	16 per cent.

The urine contained a trace of albumen, a few red blood cells, but no casts. It was clear that the condition was one of infantile scurvy, and that the terminal stage was already reached. The patient died on the following day.

The autopsy findings were of special interest, and, as far as I can ascertain, this examination was the first of the kind made in Montreal. I am indebted to Dr. Adami for an account of his findings, which are here summarized.

In the soft parts, there was found but little to detain one. The lungs and heart, the pleura and pericardium, the peritoneum and meninges were free from signs of hæmorrhage. The spleen was slightly enlarged; the liver fatty, the kidneys congested, and, on microscopic examination, the secreting cells of the convoluted tubules presented a well marked cloudiness. In the soft palate a small extravasation of blood was discovered, while the gums of the upper jaw were swollen and reddened. The chief interest, however, in such cases centres in the condition of the bones and periosteum. In the left orbit a large blood clot was found beneath the periosteum, displacing the eye downwards and forwards. On cutting through this clot centrally, it was pale, while peripherally of a blue-black, apparently due to a comparatively recent hæmorrhage. The heads of the ribs were deeply congested and reddened, macroscopically. Upon cutting into the swelling of the right thigh, the tissues were moist and œdematous and an extensive superiosteal hæmorrhage was found, stripping off the greater part of the periosteum, leaving the bone rough beneath. In the joint itself only a few drops of clear fluid were found. "The epiphyseal cartilages were thick, the line of ossification showed as a thin blue line, but there appeared to be no excessive congestion in the neighbourhood. From the knee to the ankle the periosteum was lifted from its place both anteriorly and posteriorly by a recent blood clot." This description applies to the left leg as well, only the signs were, if possible, more widespread and pronounced. (We regret that the fire in the Medical Building robbed us of this rather unique specimen afforded by the left leg.)

Some portions of the ribs were preserved in the Royal Victoria Hospital, and the findings, microscopically, which I have made out with Dr. Klotz, are as follows:—

In a longitudinal section of a rib at the chondrocostal junction one observed that there was a considerable irregularity in the arrangement of rows of cells at the area of normal bone formation; the marrow substance and cartilage passed rather abruptly the one into the other; the marrow was not rich in cells, but rather fibrous and apparently wasted; there were hæmorrhagic areas, both in the bone marrow and beneath the periosteum, which was separated from the bone. A specimen taken from the lower end of the right femur showed, microscopically, this rather abrupt transition from cartilage to bone marrow.

At the autopsy, then, this case showed the characteristic extensive subperiosteal hæmorrhages in orbit, femur, tibia and ribs; and, microscopically, the irregularity of bone formation at the line of calcification—the newest part of the diaphysis—the close proximity of cartilage and marrow, the lack of lymph in the marrow, or rather a fibrous bone marrow (gërust-mark), and areas of hæmorrhage into the marrow both old and recent, while here and there beneath the periosteum of the rib, discoverable only by the microscope, small areas of blood extravasation could be made out.

Our second case was also found in the eye department, when Dr. Stirling made a request similar to that of Dr. Buller, concerning a case recently recommended to his service.

Case II.—On September 18th, 1907, a little girl of eleven months was recommended to the Royal Victoria Hospital for "protrusion of the right eye."

The mother stated that at seven months of age, the patient suffered an attack of diarrhœa and vomiting, reducing her considerably. Three weeks before coming into the hospital she had a "croupy" attack followed by a cough. For two months the child's lower extremities were sore. She cried when moved or when bathed, but when undisturbed she lay very quietly, for the most part, on her right side. Two weeks before coming into the hospital her mother said that her right eyelid became suddenly swollen, and that under cold compresses the swelling disappeared only to appear again, however, on the day before admission, more marked than before.

The child had never nursed. Cow's milk, modified cow's milk, Allenbury's food and malted milk had been used, while for eight months Eskay's albuminous food had been the chief nourishment.

When admitted the temperature was 100.3, the pulse 126, and the respirations 26. Pallor was marked. The right eye was displaced downwards and forwards, the upper lid being discoloured and swollen to four times its normal size. The cornea was clear and the fundus

normal. Over the body there was a reddish papular eruption, most marked in the face. On inspection of the patient it was seen that she preferred the right lateral decubitus, with her left thigh somewhat flexed. Any attempt to change her from this position provoked a cry. There was marked asymmetry over the thighs, the left being much larger, especially about the upper part, while swelling was noticed as well just above the knees. The swollen areas were tense and hard and tender. The upper extremities were but little affected. The incisors were already through. The gums were somewhat swollen and beyond a slight hyperæmia, apparently anticipating the eruption of other teeth, nothing unusual was noted. An examination of the blood confirmed the suspicion of a profound anæmia.

Erythrocytes	2,870,000
Leucocytes	13,600
Hgb	26 per cent.

In coloured specimen, polychromatophilia and numerous nucleated red cells were found, while a differential count of 541 white cells gave the following result:—

Small lymphocytes	37 per cent.
Large lymphocytes	3 "
Polymorphonuclear	58 "
Transitional	1.5 "
Eosinophile	.5 "

From the condition found on examination, particularly when one considered the feeding of this patient, no diagnosis was so reasonable as that of infantile scurvy.

A change of diet was magical in the results. The swelling disappeared, the face regained its normal appearance, and in a few days (four or five) manipulation of the limbs was free and painless, and the cry of distress was no longer heard.

The pathology of infantile scurvy, or at any rate the history of the development of our knowledge of this disease, is written in the names under which the condition has been described. For instance, Möller's cases of "acute scurvy" described in 1859 are now believed to have been the same as infantile scurvy. To such cases in England, the term "hæmorrhagic periostitis," or "periosteal cachexia" was applied. The paper by Cheadle in 1878 on "Three cases of Scurvy suprevening on Rickets in Young Children," and, especially Barlow's communication in 1883, "On cases described as Acute Rickets, which are probably a

combination of Scurvy and Rickets, the Scurvy being an essential and the Rickets a variable element," expressed another point of view, and the term "scurvy-rickets" was for a time synonymous with Barlow's disease. From the two descriptions of the same condition expressing somewhat different views, the name Möller-Barlow's disease came into use in Germany. Now that a more general agreement concerning the essential points in the anatomy of the disease has been reached and the relation which it bears to scurvy seems as firmly established as the difference existing between Barlow's disease and rickets is clear, Fraenkel urges that the above name, common in Europe, be dropped and infantile scurvy be adopted. Looser argues from the point of view of the cause, the course, and the cure, that this disease is identical with scurvy in the adult, all the differences in clinical history and morbid anatomy finding ready explanation in the difference in the ages of the subjects.

Senator says that the essence of the disease consists in the profound anæmia present, and this symptom, he argues, is a result of the marrow changes. In a more recent communication by Looser one finds the following line of argument: All the pathologic changes observed in this disease (those already mentioned) may find their explanation in the hæmorrhages which occur. The anæmia, due to hæmorrhage; the bone changes attributable to the same cause, including the fibrous or thready marrow; the atrophy of the cancellous tissue and the fractures of epiphyseal separations.

Schmorl is practically at one with Looser regarding what may be considered as the characteristic anatomical changes, but his interpretation is different. After a very careful study of much material, both from the human subject and from animal experiments, he comes to a conclusion which may be expressed in the following terms:— The findings in Barlow's disease are hæmorrhages, the change of bone marrow into a tissue, poor in lymph cells and blood vessels (lymph mark changed to Gërust-mark) and atrophy of bone substance. These are co-ordinated and must be dependent upon one and the same condition which affects the bone vessels, the specific or special bone cells and the bone forming cells. What "form of evil" this is which brings about these changes in the present state of our knowledge one cannot say,— most likely, however, one identical with scurvy.

The Diagnosis.—We began by quoting authorities to show that a literary knowledge of this disease was not sufficient to enable one to make a diagnosis. The same may apply, however, to almost any disease, and one should be more than ever awake to disease in its early stages

if the best would be done for one's patients. While one knows that a high percentage of infants, artificially fed, do not become scorbutic, one knows, on the other hand, that it is rare, indeed, to find a *nursing* child having such symptoms, although a few such cases are reported on good authority. The feeding then is most important diagnostically. Again it is well to remember that signs of this disease do not come on suddenly. It is true that in one of our cases the mother maintained that the eye swelling came suddenly; others have reported such observations. A fit of crying or coughing may readily bring into evidence what was already partly developed, yet unobserved. Another feature is that the temperature is unusually low, or but slightly elevated, while a purpuric eruption is rare and even when present not usually well marked. The anæmia is usually profound when the swellings are advanced for this means great loss of blood if nothing more.

The two cases reported in this paper afford us striking examples of this disease. The etiology so common was altogether favourable for the development of the signs and symptoms. It is thought that cases of infantile scurvy are rare. We are convinced that such cases as these are rare, but it is not at all likely, considering the great number of children who are artificially fed, from whose diet "fresh constituents" are excluded, that, early or only partially developed cases are more frequent than would appear from cases reported.

It is now some years since Dr. Gee pointed out that hæmaturia occurred in infantile scurvy. More recently, however, it has been attracting more attention and several writers on both sides of the ocean have remarked upon hæmaturia as an early sign of value in this disease. In the Pediatric Society's report on 379 cases published in 1898, only 22 cases were recorded as having hæmaturia. A very much larger percentage is reported by Still in a group of 34 cases, where 60 per cent. of the patients had blood in the urine.

In closing these remarks on the diagnosis of infantile scurvy one would urge that the anæmia, the restlessness or fretfulness when handled, the presence of blood in the urine and sometimes unaccountable blood in the motions, when taken together or singly, should lead one to look carefully to the food the child is taking, and such signs should make one suspicious of early scurvy. The individual resistance may in part explain the fact that such cases do not become pronounced, while, at the same time, it is not unlikely that the food is changed as the child grows older in time to prevent the development of the marked clinical features of the disease.

The study of bone lesions has been greatly aided by the X-rays, and it is claimed by E. Frænkel and others that the fine structural changes

seen in the bones in infantile scurvy may be recorded by skiagraphy and interpreted upon the plate. Frænkel describes, as a constant finding, especially in the lower extremities, both in the bones of the living and in preparations after death a peculiar characteristic shadow of varying breadth in the most recent zone of the diaphysis. This shadow is broader in the middle or centre of the zone, and diminishes laterally. In this place where the shadow is broad there is such a tangle of bony trabeculæ calcium and bone debris, blood and blood pigment that the shadow is broader here. Laterally these elements are not so numerous and hence the shadow is less pronounced and weakened. All other findings with these rays are claimed by Frænkel as inconstant.

In our two cases we have made a study of skiagrams and beyond confirming the increased density over the area of the clot or subperiosteal hæmorrhage we must admit we are unable to confirm the rather enthusiastic observations of Frænkel on the use (diagnostic) of X-rays in this disease. We are not unmindful, however, of the fact that such work as this requires a most careful technique and a wide experience in the observation of shadows cast by the bones of a child of a few months.

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MEDICAL DEVELOPMENT AT KINGSTON.

Queen's University has, within the last few days, celebrated with befitting ceremony the opening of new laboratories in connexion with the Medical School. An admirable inaugural address was delivered by Professor Barker of Johns Hopkins, and representatives from McGill, Professors Wesley Mills and Adami, from Toronto, Dean Reeve and Professor Macallum, took part in the celebrations. The occasion was of interest, not merely as marking a distinct advance in the development of the Kingston Medical School—an advance which Montreal cannot but cordially appreciate—but also as marking a new era in the relationship between the provincial government of Ontario and the University.

For many years past, through the activity more particularly of Dr. W. T. Connell, Professor of Pathology, and Dr. Knight, Professor of Biology and Physiology, the University has performed public services of no mean order in Eastern Ontario. Professor Knight especially has made a long and most valuable study of the food of fresh water fishes, and the effects of saw-dust upon the fish development. Professor Connell has been many-sided in his activities: in bacterial diagnosis, the study of epidemics, and the analysis of water and foods, and not least in connexion with the provincial dairy school, and the

study and prevention of bacterial contamination in the cheese industry. Recognizing these public services the Ontario government made a grant of $50,000 to the Medical School towards the building and equipment of adequate pathological, bacteriological, and biological laboratories, and with a remarkable economy the University has succeeded in building and furnishing a set of laboratories at once commodious and excellently adapted to their respective purposes. The one talent given to her has been used to the fullest advantage.

Queen's is to be congratulated most heartily upon gaining this much needed increase to its equipment, and upon the means whereby it has achieved it. The enthusiasm that has animated the University of late years, and the loyalty displayed by all connected with it, from the Principal down to the youngest undergraduate is admirable. Despite lack of means, and despite the non-existence of wealthy alumni or benefactors, she has managed during the last few years to add greatly to her buildings, and the way in which her alumni have come to her aid is an example to all the other Universities of the country. They have, however, done so much, that the Medical School could not look to them for aid. Under these circumstances there is a certain poetic justice in the public services of the staff becoming recognized and turned to the advantage of the school. With such a spirit we cannot be surprised that the University is able to increase the number of her students, and to hold her own manfully against her wealthier Ontario rival, abundantly maintained as that is by provincial funds. With such a spirit as she now exhibits, and with sound ideals of University life, no one interested in education can but wish Queen's continued prosperity, and recognize the useful part played by her. As a Medical School we must regret that the hospital facilities are disproportionate. As at Ann Arbor the deficiency in clinical material must be made up to some extent by more thorough grounding in the ancillary branches of the course, and notably in the laboratories. It is here that the new building assumes so high an importance for Queen's.

DR. E. P. LACHAPELLE AND LAVAL UNIVERSITY.

We cordially congratulate our colleagues of the Medical Faculty of Laval University, Montreal, upon the wisdom they have shown and the honour they have done themselves, in appointing Dr. E. P. Lachapelle as Dean, in succession to Dr. Rottot who has resigned the post, worthily held, if we mistake not ever since the foundation of the school. No medical man of our generation in this Province has devoted himself

so disinterestedly, for so long a period, or in so many different directions to the promotion of the health and well-being of his fellows as has Dr. Lachapelle. We say this freely despite the fact that we have not always been at one with him in matters of policy. To him more than to any other is due the establishment of the Provincial Board of Health, over which he has presided for now close upon twenty years, with steady increase in the power and efficiency of the institution; to his energy Notre Dame Hospital owes its existence and its expansion, and to him very largely is due the development of the technical training of the nurses, religious as well as lay, for the French portion of our community. Coming to matters more immediately related to professional life, for many years he presided with distinction over the College of Physicians and Surgeons of the Province. This is a record of public work difficult to match, a record that assures Laval that its new Dean will, with his ripe experience, devote himself loyally and successfully to the promotion of the best interests of its medical school.

RETIREMENT OF DR. ROTTOT.

Dr. Jean Philippe Rottot, who has just retired from the position of dean of the medical faculty of the University of Laval, has had a long and distinguished career. It is with great regret that the governing body of the University part with his services. Although Dr. Rottot was one of the leading French practitioners for many years, he always devoted a great part of his time to patriotic enterprises. He was one of the most prominent figures in the wards of Notre Dame Hospital; and, although refusing all public positions in the gift of his fellow-citizens, was a close follewer of all political events touching the well-being of Canada. Dr. Rottot was born at l'Assomption in the year 1825, and received his degree from the College of Medicine and Surgery of the Province of Quebec in the year 1847.

Few men have had a more distinguished career in their profession than Dr. Rottot, and few have brought more honour than he upon their race and nationality.

THE UNIVERSITY CLUB.

Montreal will have its university club in operation by the first of May, when the organization will have passed from theory into fact. For twenty years there has been discussion. Now there is a club, and the reproach is removed that there was no place where all university men could meet together. A sufficient number of members has joined the

club to ensure its success. Sixteen universities are represented in the membership, but less than one quarter of the university men in Montreal have signified their adherence. The University Club will only fulfil its complete function when the names of nearly all eligible members are found on its roll and the members themselves within its rooms. With the pressure of work many men in the universities are strangers to each other and even members of the same faculty too infrequently meet together. This is especially true of members of the medical faculty and profession. They may now meet upon common ground and it is an obligation upon all to seek membership in the club.

The students of the University of Pennsylvania Medical School have formed an organization the purpose of which is to acquaint the undergraduates with the workings of the American Medical Association, after which it is very closely modeled. The various student societies take the place of the State organizations and elect members to a House of Delegates which transacts all the business of the association. An annual meeting is held at which papers are read by chosen members thus encouraging original research and a scientific spirit. The organization is named The Undergraduate Medical Association of the University of Pennsylvania and already has over two hundred and fifty members.

Hull's difficulties with regard to the epidemic of typhoid which is prevalent there, appear to be far from settled. The matter is generally considered fairly serious. As the authorities say that the water is pure enough when it enters the pipes, it is inferred that the danger must arise somewhere along the lines of water services. The Hull Waterworks Committee have made careful efforts to clean out the water mains, but the results have not been entirely satisfactory. One physician reports twenty-three cases in his practice.

The Committee of Management of the Western General Hospital announce that their new building is now completed and ready to receive patients, public and private. The building is fireproof and excellently equipped and contains a large number of private wards. Any physician, whether on the staff of the hospital or not, may attend his own patients in the private wards.

TORONTO GENERAL HOSPITAL.

According to a report in the *Toronto World* of January 16th, 1908, the list of appointments to the Toronto General Hospital staff has been completed and the recommendations presented to the Board have been adopted. A committee has been at work upon the subject for several months and the Hospital has adopted the report in its entirety. Following is a list of the names of the members of the staff:—

Surgery—Service in charge of Dr. A. Bingham—Senior assistant, Dr. Chas. Shuttleworth; clinical assistants, Drs. Walter Scott and Arthur B. Wright.

Service in charge of Dr. Alex. Primrose—Senior assistant, Dr. F. N. G. Starr; clinical assistants, Drs. Stanley Ryerson and S. Westman.

It is recommended that Dr. Clarence L. Starr be given the standing of senior assistant and attached to Dr. Primrose's service for the purpose of being available as an assistant for I. H. Cameron, the senior professor in surgery in the University of Toronto.

Service in charge of Dr. Herbert A. Bruce—Senior assistant, Dr. W. J. O. Malloch; clinical assistants, Drs. Warner Jones, John MacCallum and A. A. Beatty.

Medicine—Service in charge of Dr. Alex. McPhedran—Senior assistant, Dr. Andrew R. Gordon; clinical assistant, Dr. Wm. Goldie.

In charge of tuberculosis clinic, under Dr. McPhedran's service, Dr. Harold C. Parsons.

Service in charge of Dr. W. P. Caven—First senior assistant, Dr. John Fotheringham; second senior assistant, Dr. W. B. Thistle; clinical assistants, Drs. E. C. Burson and Joseph S. Graham.

In charge of the department for the treatment of functional neuroses, under Dr. Caven's service, Dr. D. Campbell Meyers.

Service in charge of Dr. Graham Chambers—Senior assistant, Dr. R. D. Rudolf; clinical assistants, Drs. Goldwin, Howland and G. W. Ross; clinical assistant in dermatology, Dr. D. King Smith.

Gynæcology—Service in charge of Dr. Jas. F. W. Ross—Senior assistant, Dr. Frederick Marlow; clinical assistants, Drs. W. B. Hendry, A. C. Hendrick, Ida E. Lynd and Helen MacMurchy.

Obstetrics—Service in charge of Dr. Kenneth McIlwraith—Senior assistant, Dr. Frederick Fenton; clinical assistant, Dr. J. A. Kinnear.

Eye Department—Service in charge of Dr. R. A. Reeve—Senior assistants (of equal rank), Drs. Chas. Trow, J. M. MacCallum and D. W. Maclennan; clinical assistants, Drs. Colin Campbell and W. H. Lowry.

Ear, Nose and Throat Department—Service in charge of Dr. Geo. McDonagh; senior assistants (of equal rank), Drs. D. G. Wishart;

Geoffrey Boyd and P. Goldsmith; clinical assistants, Drs. C. Mon Stewart and G. Royce.

Department of Anæsthetics—Dr. Samuel Johnston in charge; Assistant, Dr. Duncan Anderson.

Electrical Department—Dr. Chas. R. Dickson in charge; assistant, Dr. George Balmer.

The committee also recommended that all appointments lower than that of senior assistant should be probationary and subject to special review before the annual appointments are made; and that in observance of the provisions of the Burnside trust agreement, Drs. J. A. Temple and F. M. Grasett be appointed life members of the active staff without service.

The committee recommended that the following be added to the consulting staff. *Medicine*—Drs. John L. Davison, T. F. McMahon, W. H. B. Aikins, Allan Baines and John Caven. *Surgery*—Drs. Luke Teskey, R. B Nevitt and N. A. Powell. *Obstetrics*—Dr. Adam H. Wright. *Eye and Ear Department*—Drs. G. Sterling Ryerson and G. H. Burnham.

The committee recorded its appreciation of the excellent character of the service rendered by the staff past and present.

Reviews and Notices of Books.

THE TREATMENT OF FRACTURES; WITH NOTES UPON A FEW COMMON DISLOCATIONS. By CHARLES LOCKE SCUDDER, M.D., Surgeon to the Massachusetts General Hospital, Lecturer in the Harvard University Medical School. Sixth Edition, thoroughly revised and enlarged, with 856 illustrations. Philadelphia and London: W. B. Saunders Company, 1907. Canada Agents: J. A. Carveth Co., Ltd., Toronto, Ont.

This work is becoming more and more a standard authority on fractures. The need of the Sixth Edition two years after the appearance of the Fifth is evidence of its popularity and general usefulness. It does not go as fully into the pathology of fractures, it does not discuss as fully the details of the displacements of fragments, the injuries to the soft tissues, to the nerves and to the blood vessels as does Hoffa in Frakturen Und Luxationen, or Bardenheuer in Die Allgemeine Lehre Von Den Frakturen Und Luxationen.

As stated in the preface, the original purpose of the book has been the presentation in concise and illustrated form of efficient methods

of treating the common fractures of bone. This purpose has been kept constantly in mind, and has been carried out with great ability and clearness. The book is essentially practical and is a lucid and safe guide in the treatment of fractures.

The wisdom of operating upon certain fractures is considered at some length in this edition. And while the advantages are made clear, the dangers of undertaking this method of treatment, particularly when joints are involved, as in fractures of the olecranon and patella are duly emphasized. The danger to life and limb is fairly stated, and in the author's opinion, it "should be undertaken only by surgeons of exceptional judgment and great skill who have at hand skilled assistants, and who can work under the most rigid aseptic conditions."

Those of us familiar with the unpublished history of these operations will be fully in accord with these views. New illustrations and new X-Ray pictures have been added. Especial attention has been directed to obstetrical fractures of the newborn, to fractures of the zygoma, of the malar bone, of the superior maxilla, of the head and neck of the radius, of the neck of the femur, and the carpal scaphoid; to unreduced dislocations of the elbow, to acromioclavicular dislocations, to pathological fractures, to old fractures of the radius and to Volkmann's contracture.

HUMAN ANATOMY; INCLUDING STRUCTURE AND DEVELOPMENT AND PRACTICAL CONSIDERATIONS. Edited by GEORGE A. PIERSOL. The J. B. Lippincott Company, New York, 1907.

This huge volume is the work of four professors of anatomy in American schools: Dwight of Harvard, McMurrich of the University of Michigan (now of Toronto), Hamann of the Western Reserve University, and Piersol of Pennsylvania. These have written on structure and development, whilst J. W. White, Professor of Surgery in Pennsylvania University, has dealt with the "Practical Considerations." We must say that the including of applied anatomy in a general text-book of systemic anatomy, although useful to the general practitioner, increases the burthen (already too heavy) of the student. A separate work in this subject is much preferable. Also histology, which is now usually taught outside the chair of anatomy by a specialist should be treated of in a separate text-book. Ordinary systemic anatomy is a sufficiently extensive subject for one book, and when others are added the work, as well as the subject, becomes unwieldy. The weight of the book alone would discourage a student, let alone the enormous scope of its contents. The book is well and clearly written, and magnificently illustrated. Most of the illustrations are original, though occasionally

an old, familiar friend is met with. Many of the illustrations are in colours. We are glad to see that the terms in use by English speaking anatomists and surgeons have been, for the most part, retained, the new nomenclature of the Basle Congress appearing in special type reserved for that purpose. We should advise, in case all the extraneous matter is retained, that the book be divided into sections as in Quain's or Muir's anatomies; for at present such a huge book will alarm students and deter them from the study of anatomy. There are no less than 2088 pages excluding 20 pages of introduction and contents. The illustrations everywhere are good, but especially illuminating in the sections of osteology and arthrology. The illustrations of the lymphatic system are also good and numerous. The text throughout is good, though in some parts rather too diffuse. The work is well printed and put out in the usually good style of the publishers.

F. J. S.

A Textbook of Physiology. By Isaac Ott, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. Second Edition, revised and enlarged; 393 half-tone and other engravings, many in colours. F. A. Davis Company, publishers, 1907.

When the first edition of this work appeared it was reviewed in these columns and a favourable opinion of it expressed. The present edition represents a much improved book. It has been enlarged by the addition of 240 pages, mostly new matter. Some of the chapters have been practically re-written, others greatly changed, and all subjected to revision. The form in which the material has been cast is one that will appeal to readers and make the work of the student lighter—no small matter considering how much the medical student is expected to master these days. But at the same time one has only to look into a work of this kind to learn how much easier is the road to knowledge now than even ten years ago. If the student did little more after he had mastered the bare elements of physiology than look into this work with its teeming illustrations drawn from every source—if he faithfully studied these he must have a great help in acquiring that power to form mental pictures of organs, conditions and processes so valuable to every medical man; for the doctor cannot carry the laboratory around with him, and if it has not helped him in the mental process here alluded to its value has been but small, however fine the "tracings" he may have obtained, or however expert he may be in handling mechanical appliances. If Professor Ott's work served no other purpose than to furnish such a magnificent treasure-house of illustrations

it would be a valuable addition to any library. The author has taken great pains to bring his work up to date in every respect.

W. M.

PRACTICE OF MEDICINE. J. M. FRENCH. Third edition, 1907. Wood & Co., New York.

The success of this text-book can be judged from the fact that, since its first appearance in 1903, two additional editions have been necessary. The present edition is increased more than one half in size by new matter introduced. It is profusely illustrated by plates and drawings, some of which are original, but the majority of them are borrowed from other well-known sources. The style is good and the text reads easily. The author has had an experience of nearly twenty-five years as an instructor, and should be in a position to present a concise and attractive work for the practitioner and medical student.

Part I is devoted to the Principles of Medicine, under which such subjects as fever, inflammation, infection and immunity are briefly discussed. The sections on the Infectious Diseases, those due to animal parasites, and the Diseases of the Nervous System have been almost wholly rewritten, we are told. A more modern classification and nomenclature of animal parasites has been adopted. The introduction of the metric system of weight, measure, and temperature, with their equivalents in the English system, is worthy of imitation.

The article on Typhoid Fever is open to the criticism of many, from the fact that the author recommends the use of calomel in small doses at the onset of the disease, "for its antiseptic effect on the intestine." He also recommends salol for the same purpose. Another questionable statement is: "If the fall of temperature after a cold bath during the first week is more than 2.5°F., the disease should not generally be pronounced typhoid fever." A special article is devoted to paratyphoid fever. The "fresh air" treatment for lobar pneumonia is strongly advocated. The bacillus of Afanassieff is accepted as the probable cause of Pertussis. The weakest sections are those on the diseases of the Blood and Nervous System. The last few pages are devoted to a very elementary description of the examination of the blood, sputum, fæces and gastric contents.

C. P. H.

TRANSACTIONS OF THE FIFTH ANNUAL CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICES. The United States Public Health and Marine Hospital Service, Washington, 1907.

These transactions published by the authority of the Surgeon-General are a fresh indication of the increased attention which is given officially in the United States to matters of public health. The subjects dis-

cussed were: The sanitary supervision of milk supplies; the geographical distribution of malaria, and carriers of bacilli.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Professor of Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Eighth Revised Edition. Octavo of 1317 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $5.50 net; Half Morocco, $7.00 net. Canadian Agents: J. A. Carveth & Co.

The seventh edition of this work has been out but two years; the issue of the eighth following so promptly upon the seventh, indicates that the book is popular. A certain rearrangement of the Animal Parasitic Diseases appears, and one or two new articles are added. The present reviewer questions the advisability of the term 'Abortive Pneumonia, which has been soiled by much ignoble use, and questions still more the existence of the disease; and the paragraph added in this edition upon Chronic Appendicitis without preceding acute attacks, leads to the conclusion that whatever disease or group of diseases is here described, the appendix has little or no share in their causation, and appendicitis is scarcely the term under which it should be described. This paragraph contains so many doubtful statements, such as this, that influenza may cause appendicitis, that its omission will not harm the next edition which may be confidently expected to be issued.

The Toxins and Venoms and their Antibodies. By Em. Pozzi-Escot. Translated by A. I. Cohn. John Wiley and Sons, New York. Price, $1.00.

This is a handy little book of one hundred pages, giving very briefly the essential characters of the various toxins of cellular origin. The author has collated the main facts from many experimental studies.

In the first portion of the book a general oversight is given of the alkaloidal and bacterial toxins and the antibodies which are developed in the living organism. The various theories are briefly dealt with and a very good general review is obtained of what may be considered an extremely complex subject. In the latter half of the book various toxins and venoms are discussed as far as our knowledge to-day permits. The simpler experiments are also given.

This book can be recommended to those who have not the opportunity of becoming more familiar with the subject in the laboratory, but who are, nevertheless, desirous of keeping abreast with the progress made in the study of immunity.

BLOOD STAINS, THEIR DETECTION AND DETERMINATION. By MAJOR W. D. SUTHERLAND, of His Majesty's Indian Medical Service. Baillière, Tindall and Cox, London. Canadian Agents, J. A. Carveth & Co.

This book is dated September, 1907. It is new in other respects also. The question of blood-stains has not heretofore been so adequately treated. All methods which are of value for detecting blood and for determining its origin are fully described. The sections which deal with precipitins are of especial value. The book is full of interest. Cases are cited and incidents are recorded, which make the reading a pleasure. "Sutherland on Blood-Stains" is likely to become an authority.

COSMETIC SURGERY. By CHARLES C. MILLER, M.D. Oak Printing Company, 9 Wendell Street, Chicago.

A "foreword" is the sign of a silly book. Dr. Miller's Cosmetic Surgery is no exception, but fortunately the book is small. There are some new expressions in it, which collectors of abnormalities might like to have. Two are "featural surgery" and "elective surgery." One chapter is devoted to "the formation of the dimple." In view of the large number of silly people in the world who demand "elective surgery," Charles C. Miller may not be so silly as his book would indicate.

TRANSACTIONS OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS. Seventh Triennial Session, held at Washington, May, 1907. Published by the Congress, New Haven, 1907.

The volume opens with Osler's address on "the evolution of the idea of experiment in medicine." Dr. Barker follows with a paper on "neurological and psychiatric neuroses." Dr. Stengel describes "chemical and biological methods in diagnosis." Other contributors are Drs. Cabot, Bulmer, Musser, Stockton, Mayo, Munro, Jacobi, and Janeway. These names indicate the importance of the book.

INTERNATIONAL CLINICS. A quarterly of illustrated clinical lectures and especially prepared original articles, edited by W. T. LONGCOPE, M.D., Philadelphia. Vol. IV., Seventeenth Series, 1907. J. B. Lippincott Company, Philadelphia and London.

This volume of Clinics is one of the best of the series which we have had the privilege of examining in the past five years. It contains over 300 pages of freshly prepared material by more than thirty authors with nearly a hundred plates, tracings and figures. We note an article by McPhedran, of Toronto, on "The urgency of early diagnosis of

cancer of the stomach," and a reference to Morrow's work on negative venous pulse. The book has a usefulness which no physician can afford to disregard.

MEDICAL DIAGNOSIS. By CHARLES LYMAN GREENE, M.D. Second Edition revised. 7 coloured plates and 241 illustrations. P. Blakiston's Son and Company, Philadelphia. $3.50 net.

This is a book of nearly 700 pages with 250 illustrations; yet it is easy to the hand and eye—thin paper limply bound, with side headings. The edition is the second. The first was issued only seven months ago. It is a most generally useful book, direct in statement, logical in arrangement, not a compend.

Medical News.

WESTERN HOSPITAL.

The annual meeting of the corporation and governors of the Western Hospital was held on Tuesday, January 21st, 1908. Mr. Peter Lyall, the president, occupied the chair. The following officers were elected:

Hon. Presidents.—Messrs. C. P. Smith and R. Hersey. President—Mr. Peter Lyall. First vice-president—Mr. Robert Bickerdike, M.P. Second vice-president—Mr. B. A. Boas. Treasurer—Mr. H. A. Hodgson. Secretary—Dr. George T. Ross.

Committee of management—Messrs. J. C. Holden, P. W. Trenholme, T. J. Rutherford, Thomas Gilday, J. T. McCall, John Murphy, Dr. Perrigo, J. Pitblado, C. W. Davis, Henry Birks, Milton Hersey, Dr. Hackett and W. J. King.

The medical board was re-elected.

Dr. George Ross, the secretary, submitted his report. Only six of the forty-two original chartered members had survived to see how the work begun thirty-five years ago had prospered. During the year the old hospital had been converted into a nurses' home and the new building was completed and opened to the public. The number of patients had increased by one hundred over the previous year, and outdoor consultations by five hundred, despite the fact that the active medical and surgical work was in abeyance during several months of the year.

As the average cost per day was $1.46 for each patient, and as the cost of supplies had increased it had been found necessary to slightly increase the charge for private patients. Dr. Ross dwelt strongly upon the fact that increased efforts should be made to secure funds for the maintenance of the hospital.

The treasurer, Mr. H. A. Hodgson, said, that, although the property was very valuable it was unproductive, and the income from the endowment did not pay one-quarter of the annual interest on the $40,000 mortgage. The balance required to clear off the new building and furnishings amounted to $62,578. The receipts for the year had been $20,184 and the disbursements had amounted to $319 less.

Dr. F. J. Hackett, secretary of the Medical Board, stated in his report that in the indoor department there had been 772 admissions during the year. Of these 630 were from the city, and 92 from a distance. The death rate had been 5.9, but excluding those who had died within forty-eight hours after admission, the rate was reduced to 4.2. In the outdoor department the consultations had numbered 6,786.

ROYAL VICTORIA HOSPITAL.

The annual meeting of the Royal Victoria Hospital was held on January 28th. The fourteenth annual report was presented.

The number of patients admitted during the year was 3,398, a decrease of 46 from the previous year.

There were 1,994 Protestants, 1,071 Roman Catholics, 290 Hebrews and 43 of other faiths; 1,656 were free patients, 1,280 public ward patients, paying fifty cents and one dollar per day, and 462 private ward patients; 2,473 were residents of Montreal, and 925 came from districts outside of the city.

The total days of hospital treatment aggregated 81,902, as against 73,993 during the previous year, an increase of 7,909 days.

The average number of days' stay in hospital per patient wsa 24.10, as against 22.04 the previous year.

On the 1st January, 1907, there were 224 patients in the hospital remaining from 1906, and during the year 3,404 were discharged. of whom 1,897 were well, 1,002 improved, 165 not improved, 123 not treated, and 217 died. Remaining in hospital 31st December, 1907, 218.

Of the 217 deaths, 71 took place within 48 hours of admission.

The death rate for the year has been 6.81 per cent., or, if those dying within 48 hours after admission be deducted, 4.58 per cent.

The highest number of patients in the hospital on any one day was 260 on the 11th January, and the lowest was 199 on the 20th of May; the highest monthly average was 245, in January; and the lowest 209, in April; the daily average for the year being 224, as against 203 for the previous year, an increase of 21.

During the fourteen years that the hospital has been in existence, 36,524 patients have been admitted to the wards for treatment.

In the Out-Patient Department, the total number of patients treated was 4,156; the number of visits of these patients aggregated 27,399:—Medical, 9,379; surgical, 8,311; eye, 3,505; nose, throat and ear, 4,758; diseases of women, 1,446.

The ambulance made 1,128 trips.

The income for the year was $168,381.04, while the ordinary expenditure amounted to $146,610.09; the balance of $21,770.95 being applied in reduction of the indebtedness incurred by the new buildings and other additions.

The total cost per day per patient has been $1.79; the cost per day of maintaining each person in the hospital—staff, servants, all employees and patients—being 81 cents, a decrease of 4 cents from the previous year, and the daily cost of provisions for each person, 19½ cents, a decrease of 2 cents from the previous year.

THE ROYAL VICTORIA HOSPITAL.

Monthly report for December, 1907:—Patients admitted, 304; patients discharged, 306; patients died, 17; medical, 99; surgical, 122; ophthalmological, 20; gynæcological, 31; laryngological, 32.

Outdoor department:—Medical, 750; Surgical, 619; eye and ear, 263; diseases of women, 85; nose and throat, 366; total, 2,083. Number of ambulance calls, 102.

Yearly report for 1907:—Patients admitted, 3,398; patients discharged, 3,187; patients died, 217; medical, 1,044; surgical, 1,328; ophthalmological, 259; gynæcological, 433; laryngological, 334. Outdoor department:—Medical, 9,379; surgical, 8,311; eye and ear, 3,505; diseases of women, 1,446; nose and throat, 4,683; total, 27,324. Number of ambulance calls, 1,115.

According to the report of the medical superintendent of the General Hospital, 182 patients were admitted to the wards of the hospital during December and 181 were discharged. There were 19 deaths, seven of which occurred within three days of admission. The average daily sick in the hospital was 185, and the highest number on any one day was 203. Outdoor patients numbered 3,596. The ambulance made 102 runs in response to calls. The average number of visitors on visiting days was 316.

F. W. Goodwin, a prominent practitioner of Halifax, died on Wednesday, December 20th. He was a native of Baie Verte, and a gradu-

ate of Halifax Medical College, where he took his degree in 1885. In 1899 he went to England and received the usual qualifications. He was on the staff of the Halifax Medical College, where he lectured on therapeutics and materia medica. He was past president of the Halifax Branch of the British Medical Association and had also been the Secretary.

Dr. Frederick John Bradd, of Peterboro, died at Nicholl's Hospital, 28th December. The deceased was forty-eight years of age, and was born in Northumberland County. He received his early education at Cobourg University, and later on took a course in medicine at Toronto University, graduating in 1888. He had resided in Peterboro for the past ten years and was considered one of its most successful physicians.

Dr. E. J. T. Fisher died at his residence, 121 Spadina avenue, Toronto, December 8th, at the age of 64. He was a graduate of Victoria University and had been practising medicine in Toronto for forty-five years. Dr. Fisher had served as surgeon to the 10th Royals in the Fenian Raid.

Captain Charles Dickie Murray, of the Permanent Medical Corps, died at the military hospital in Halifax on December 12th. Dr. Murray was the son of the late Rev. Wm. Murray, and had practised medicine in Halifax before joining the army service.

Dr. Henri Larue, of Hull, died at Quebec. He had practised medicine in Hull for only a year. The late Dr. Larue was married to a daughter of Senator Gadbout of Beauce, and was a son of Hon. Mr. Larue of Quebec.

Dr. Philip J. N. Strathy, eldest son of Mr. H. S. Strathy, former general manager of the Traders' Bank, died suddenly at his home, 467 Spadina Avenue, Toronto, on Thursday, January 2nd.

Dr. Overton of Exploits, Newfoundland, died there on Thursday, January 2nd. The deceased was a graduate of Columbia University.

Dr. C. N. Stevenson, of Coaticook, died on December 15th. He had practised medicine there for some twenty-five years.

Dr. Richardson, of Canmore, surgeon to the Canadian Pacific Railway mines at that place, died on December 10th.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

HEINEKE. "Rupture of the Pancreas." *Ueber Pankreasrupturen. Archiv. Klin. Chir.,* 1907, 84 Bd. 4 Hf.

Since Garrè drew attention to rupture of the pancreas a number of additional cases have been reported. Heineke reports 5 of subcutaneous injury to the pancreas, upon 4 of which he operated; of these 3 were isolated ruptures of the pancreas, while the other 2 were complicated by injuries to adjacent organs. In one, a 14-year-old lad who had been kicked by a horse, a tear was found in the serous coat of the liver; the stomach and intestines were intact. Upon the convexity of the spleen was a tear extending somewhat deep into the parenchyma. The spleen was removed. In the tail of the pancreas was a longitudinal tear about 2 cm. deep with very little bleeding. The wound in the pancreas was tamponned. The patient made a good recovery.

The second case was a man 44 years of age, who had been run over—the wheel passing over the left side of the abdomen. In this case neither the liver nor spleen as injured, but a longitudinal tear was found in the pancreas—there was but little bleeding. In addition there was found a tear in the jejunum. Intestinal and pancreatic tears were sewn. The man died 10 hours after in collapse. At autopsy a fracture of the 3rd to 7th ribs on the left side was found; also fracture of the pelvis and left hemothorax.

Rupture of the pancreas complicated by other serious injuries though rather more common than isolated rupture is still a rare injury—seldom observed at the operating table, and indeed infrequently found in the autopsy room. In the Pathological Institute at Leipsic, among 9,500 sections during seven and a half years only one case was seen. Indeed most of the cases reported in literature have been observed in the autopsy room. One might almost wonder that rupture of the pancreas has not been found more frequently in cases of traumatism to the abdominal wall when one remembers its transverse and exposed position lying directly across the bodies of the 1st and 2nd lumbar vertebræ. Recent experiences, however, indicate that hæmorrhage from these injuries is not great, and in many instances recovery follows the suturing and tamponning of the tear.

That recovery may follow very severe injuries of the pancreas is illustrated by the case of a man 34 years of age upon whom a mass of earth had fallen across his stomach and lower part of the chest. At first he was breathless and, he immediately suffered from severe pain in the region of the stomach—no vomiting. He was taken into the hospital 2 hours later. He then complained of severe abdominal pain—his breathing was short—great tenderness over the lower ribs on both sides, particularly the right. The abdomen was distended—great tenderness in the epigrastic region—pulse good. The diagnosis of intraperitoneal injury was not clear, particularly because of the association of the fractured ribs. The abdominal pain increasing more and more, and the distension becoming greater and vomiting appearing, operation was undertaken 4 hours after the injury under chloroform narcosis. Blood was found in the abdomen, but not in great quantity. Liver and spleen were not injured. After a long search a longitudinal tear was found in the gastro-hepatic omentum. Through this tear one came upon the pancreas: the gland was found completely divided, in the middle in front of the vertebra into 2 parts, the borders well-defined, and not particularly crushed—the bleeding was not great, only one spouting from the left half, the splenic vessels were not seen, and there was no fat necrosis. The bleeding artery was tied, the coagula removed and the two halves of the pancreas were united by 6 cat-gut sutures passed through the whole thickness of the gland. A drain and a tampon of sterile gauze were carried down the suture line. The man recovered and left the hospital well.

A somewhat similar case of complete transverse rupture of the pancreas was observed in the Leipsic Clinic a few years ago. Nineteen cases of isolated ruptures of the pancreas are collected. Of these 19 five were not operated upon, and all died. Of 14 operated cases 9 recovered and 5 died, although one of the late Prof. Mickulicz's cases died of lung complications 5 months later. Of the 4 others in 2 the tear was not found and the 3rd came too late, and was in too bad a condition for operation. It would seem that the prognosis in injury of the pancreas is good. All the cases that had been operated upon immediately with the nature of the injury recognized have recovered. The prognosis is bad when seen for the first time several days after the injury when the secretion of the pancreas has caused considerable alteration of the peritoneum.

The chief complications in injury to the pancreas would seem to be lung complications, hæmorrhage, and the escape of pancreatic secretion into the abdominal cavity. The danger from hæmorrhage is not great as has been already observed by Körte and Karewski. Even in com-

plete transverse rupture of the pancreas the hæmorrhage was not extreme. Associated ruptures of the spleen and liver may add considerable to the danger. The important indications in the treatment are to arrest hæmorrhage and prevent the escape of the secretion so far as possible. Untreated cases generally die from the 4th to the 8th day, death being preceded by vomiting, distension of the abdomen, constipation and symptoms resembling ileus. If operation is undertaken at this time, the nature of the condition will be made evident by the fat necrosis, the injection of the peritoneum and the bloody serous exudate present. A definite diagnosis of rupture of the pancreas is generally impossible. In most cases one can only diagnose a perforative peritonitis, which may be from the liver, spleen, pancreas, or some other viscus. The most important evidence in favour of the pancreas is the site of the trauma. Often it is a kick or a blow in the epigastrium. Garrè and Körte have pointed out that sometimes in isolated rupture of the pancreas there are comparatively few important symptoms during the first few hours. The pulse may be normal and regular—no shock—no vomiting, but after a few hours grave symptoms develop quickly. This free interval, however, is not constant. The symptoms may develop immediately after the injury is received. There appears to be only one symptom which permits of an almost certain diagnosis of injury to the pancreas, and that is, a collection of blood in the lesser omental sac. When the Foramen of Winslow is closed and the gastro-hepatic and gastro-phrenic omentum is not torn, as is not infrequently the case, the collection of blood in the lesser sac gives rise to a tumour in the epigastric region. Such a tumour rapidly developing after severe traumatism to the epigastrium, suggests the probability of injury to the pancreas.

Any part of the pancreas, of course, may be injured, but particularly that part lying immediately in front of the bodies of the vertebra.

As to the cause of fat necrosis, these cases have not thrown much light, and the question may still be asked whether the pancreatic secretion itself causes this change, or must there be in addition some other unknown agent at work?

Among the cases of pancreatic injury fat necrosis has been present in only a few. Truhart found that among 138 cases of injury to the pancreas, including gun-shot, and puncture wounds fat necrosis was present in 17. In 121 it was absent. As Truhart suggests the absence of fat necrosis in 121 cases may have been due to the short time of exposure to the pancreatic secretion, or in other cases, to the very rapid forming of adhesions walling off the secretion from the general peri-

toneal surface. In his view, fat necrosis results from the action of some ferment present in the normal pancreatic secretion.

G. E. A.

LEDUC. "The Electrical Sleep." *La Presse Médicale,* Feb. 27, 1907. Translation from *The Journal of Advanced Therapeutics,* June, 1907. Granger.

Professor Leduc designates under this name "a sleep which is analogous to the sleep from chloroform anæsthesia; the subject lies motionless, incapable of voluntary movements, does not react to even the most painful stimulation, the respiratory movements, the heart action, and the reflexes alone persisting; this state is produced by action upon the brain of a certain form of electrical current; it can be maintained for several consecutive hours and it ceases instantly upon the withdrawal of the current."

"The current employed to produce this sleep is a special current the result of numerous experiments made by Professor Leduc at the medical school of Nantes, while studying the action of the various forms of electrical energy on the brain, spine, and nerves. It is a continuous current of low voltage which passes for a given time, ceases to pass, and again passes, the interruptions being at regular intervals. He found the best results were obtained with frequencies of 100 per second, and with the current passing for 1-10 of a period; that is, the current passes for 1-1000 part of a second 100 times every second."

"The heads of the animals were shaven and an electrode covered with several thicknesses of absorbent cotton soaked in a warm 1 per cent. solution of sodium chloride was applied well forwards immediately over the eyes." The second electrode was placed posteriorly over the lower end of the spine. The negative pole of the battery was connected with the head electrode. The current is turned on slowly and the state of electrical sleep is attained progressively, without a cry, without a movement on the part of the animal to indicate pain or excitement. The sleep was similar to chloroform anæsthesia excepting for the fact that the reflexes were not totally abolished. Major surgical operations were performed without producing any more reaction than if they had been performed under chloroform anæsthesia."

"Sleep was produced in the rabbit by using 6 to 8 volts, which gave 1 to 2 ma. in the intermittent; this would correspond to 10 to 20 ma. in an uninterrupted current. When the known necessary voltage was turned on at once the inhibition was sudden; the animal fell stiff upon his side; as a result of the generalised contractions, the respiration was suspended; after ten seconds the contractions ceased and relaxation

began; after fifteen seconds respiration became re-established, and the animal could be maintained in that condition for an indefinite period. One rabbit was kept in this state for 8 hours and 20 minutes. He survived and did not seem at all affected by this prolonged experience."

"When the experiments were terminated by suddenly withdrawing the current the awakening was instantaneous; in the majority of cases the animal immediately stood on its legs, looked quietly around him without any manifestation of pain, fear or fatigue. As soon as he was liberated he scampered around and ate with evident appetite what food was offered him."

"Nausea and vomiting were not observed and very rarely a slight stupor. The experiments did not appear to cause pain, the animals made no attempt to evade the operators, and showed no dread of later experiments."

"When, after producing the electrical sleep he continued to increase the difference of potential in the circuit he caused first an arrest of the respiratory movements, later, arrest of the heart action."

"To produce respiratory inhibition in the rabbit it was necessary to use a voltage apparently higher than that required to produce sleep; for example, he had to employ 10 volts instead of 6 which would have been sufficient to produce insensibility and loss of motion."

"It would appear that with a well regulated current the animal may be kept in the condition of sleep for hours together, and with very considerable safety. In fact, the experiments may be repeated at intervals provided the animal is allowed time to rest a few minutes during the interval between the experiments."

"In seventy-four experiments there were seven deaths, the death in each instance being due to pushing the current beyond the voltage required to produce sleep, and increasing it until it caused respiratory and cardiac failure."

"Professor Leduc concludes that there is a marked rise in the intra-carotidian blood pressure which lasts during the whole time of the electrical sleep; the temperature is rather below normal, the pupils are contracted, and the state of the reflexes depends upon the position of the anode; if this be placed on the thorax or abdomen the current does not pass through the spinal cord which is, therefore, not inhibited in its lower part, and the reflexes which are abolished in the face and upper extremities are increased in the lower extremities; if the electrode is placed on the lower part of the spine the whole cord is influenced by the current and is inhibited, and the reflexes in the lower extremities become abolished."

Professor Leduc describes his sensations under the influence of the current in the following terms:—"The sensation produced by the irritation of the superficial nerves, although disagreeable, is easily borne; after a while it quiets down just as the sensations produced by the continuous current, and after passing through a maximum of intensity, diminishes, in spite of the increase in electromotive force. The face is red, feeble contractions of the muscles of the face, neck, and forearms are produced, then I felt tingling in my fingers and hands; this tingling sensation extended to the toes and feet; the inhibition affects first the centres as speech, then the motor centres become completely inhibited, the subject is unable to react against even the most painful irritations, and he cannot communicate with the operators.

"The limbs, without being completely relaxed, presented no stiffness. The subject complains and sighs, but this is not due to any pain experienced, but seems to be caused by the stimulation of the laryngeal muscles. In the experiments on myself the pulse was not altered at all, but the respiration seemed slightly embarrassed.

"When the maximum current had been reached I still heard as in a dream what was being said around me; I was fully conscious of my impotency to move or to communicate with my colleagues; I felt the contacts, the prickings on the forearm, but the sensations were greatly benumbed. The most painful impression is to follow the dissociation and gradual disappearance of the faculties; the impression is identical with that of nightmare where in the presence of an imminent danger one can neither cry nor move. However, I could think sufficiently to profoundly regret that my colleagues did not push the current further and complete the inhibition. After our first experience we began anew, this time intending to go further; but this time again my colleagues, thinking the inhibition complete, stopped before causing complete inhibition of consciousness and sensation.

"The electro-motive force used was 35 volts, the intensity in the interrupted circuit was 4 ma. During the two consecutive séances I remained each time twenty minutes under the influence of the current.

"When the current is opened the awakening is immediate; I felt no subsequent effect, unless it be a sensation of well-being and of physical vigor, and immediately after the experiment I proceeded to a meeting which I was to address."

G. E. A.

OBSTETRICS.

UNDER THE CHARGE OF DRS. CAMERON, EVANS, AND LITTLE.

SINCLAIR SIR. WM. "Cæsarean section successfully performed for the fourth time on the same woman, with remarks on the production of utero-parietal adhesions." *Journal of Obs. and Gyn. of Brit. Emp.*, Nov., 1907.

The patient was a IV-para, aged 34 years whose obsteric history has been reported. She was extremely deformed; there being ankylosis of the left hip-joint with flexion of the left thigh upwards and inwards so that the knee was pressed upon the abdomen. The lordosis was extreme. She was of small size, and her head gave evidence of rickets. She had lost one eye and her teeth were bad.

Labour had set in the previous night, the child was living, with the head above the brim of the pelvis. Abdominal incision was made along the center of the old cicatrix, and as the dissection proceeded it was impossible to distinguish where the parietal structures ended and the uterine structures began. This permitted the whole operation to be completed without any apparent opening of the peritoneum. The wound in the uterus was closed with two series of silk-sutures and with a few silk-worm-gut sutures which brought the skin together in the external wound. The wound was dressed in lint soaked in carbolic acid and glycerine.

The convalescence was without incident. The child was a female weighing $8\frac{1}{2}$ pounds, and 18 inches in length.

The three previous Cæserean operations on the same patient are then recorded. The true conjugate was estimated at two inches.

The author reviews the various cases of repeated Cæserean Section and states that accumulating experience points to the conclusion that the patient is safest when during the second or third operation the adhesions are carefully preserved from interference.

He then proceeds to discuss the question of the production of sterility, the best time for operating in relation to the onset of labour, and the formation of adhesions, and he admits with regret that some difference of practice still exists regarding the site of incision into the uterus.

The author argues strongly against sterilizing the patient and agrees with Wallace that "all Cæsarean sections should be performed with the view to ulterior pregnancy."

With regard to the time of operating, as a rule, there is no choice as most patients come under observation in labour. The objections to the

operation before the onset of labour that it predisposes to hæmorrhage from improper contraction, and that without the dilatation of the os, drainage would be interfered with, are set aside as being absolutely groundless. The impression is that those operated on before the onset of labour have the smoothest convalescence.

In the discussion of the treatment of adhesions which result from the fortuitous contact of two internal wounds or of omentum or intestine with the uterine or parietal wound, he states that these adhesions are always a source of embarrassment to the operator, and of increased danger to the patient. He thinks that many of the fatal cases recorded of repeated Cæserean operation resulted from interference with adhesions which it would have been better to let alone. A careful review of many cases in which these adhesions have been separated and of the results obtained then follows. There is no doubt that their separation increases the duration of the operation, may cause serious danger from hæmorrhage and predisposes to injury of the intestines and the production of atony of the uterus from prolonged handling.

Without advancing any strong argument, Sir Wm. Sinclair states that in his opinion "The *Fundalschnitt nach Fritsch* should pass into desuetude or if practised at all it should be only as an exception under certain conditions." He admits that it is just possible that experience may prove that a transverse incision at the isthmus may be in exceptional cases the best, such cases probably being those which are at present so often considered spoiled for Cæsarean Section owing to mistaken, prolonged, and futile efforts to deliver the patient with forceps or otherwise. He states that "It is with a feeling of shame and indignation that I have sometimes to listen to the justification of the monstrous practice of craniotomy on the living child on this ground alone."

Though the low transverse incision is now usually practiced in Cæsarean Section in infected cases on the ground that it is practically extra-peritoneal, he is confident that his modification of the operation as described in this article would be fully as safe as the transverse incision, would be much easier of execution, and would leave the patient in a safer condition for a future operation.

After discussing the intentional production of utero-parietal adhesions, first introduced by Wallace and then by Burton, he describes in detail the technique to secure extensive and strong adhesions in the right place.

The intentional production of utero-parietal adhesions the author terms *hysteropexis hypogastrica,* and recommends the following procedure.

1. Usual external incision: eventration and wrapping up of uterus; strong temporary suture of abdominal parietes above the sponge, to prevent dislocation of bowels during operation.

2. Sufficient incision of uterus in middle line carried somewhat lower down than was usual when we feared to open cellular tissue. Extraction of fœtus, placenta, etc.

3. Application of elastic ligature, not drawn too tight, but sufficient to prevent hæmorrhage and to render manipulations by assistant unnecessary.

4. Rapid and complete suture of uterine wound with silk only; deep sutures taking large hold and tied tight; superficial sutures numerous.

5. Removal of elastic band and slight compression manipulation of uterus under suitable sterilized hot wet cloth. With return of blood supply there was the usual change of colour of the uterus to red followed by sufficiently firm contraction. Uterus now put back into its normal position and obvious supplementary manipulations carried out.

The details of the proceding suggested to secure extensive uterine adhesion to the anterior abdominal wall termed:—

Hysteropexia hypogastrica:—

(1) Fine silk sutures one on each side, are introduced low down in the vesico-uterine fold well beyond the bladder laterally so as to close the fold and prevent intrusion of intestine at some future time."

" (2) The parietal peritoneum about the level of the lower end of the abdominal wound is then drawn out a little. A fine silk suture is then passed through the peritoneum from without and made to take hold of a layer of the uterus well out from the margin of the uterine wound; it is then passed back through the peritoneum and tied. The knot is consequently extraperitoneal."

" (3) This method of suturing is continued symetrically on both sides until the uppermost sero-serous suture was slightly above the level of the lower margin of the corpus uteri."

(4) " A stronger silk thread is now passed through the fascia on the left side of the wound, taking a good hold of it, then continued through the peritoneum and across through a considerable not very superficial portion of the uterus. The suture is then brought out through peritoneum and fascia, and so is ready to be tied as a buried suture."

7. " The final details common to all Cæsarean sections in closing the abdominal wound by four series of sutures."

8. " Thorough swabbing of the os uteri and vagina with hot, strong, corrosive sublimate solution, and application of wet antiseptic pad to vulva."

Thus is secured, (1) a wide area to the abdominal parietes by sero-serous sutures; (2) Firm support of the uterus by transverse sutures so as to prevent displacement involution. The author also claims that this procedure excludes the intestine and omentum from the field of future operation, secures the prevention of obstruction of the bowel by adhesions, and does not lead to any interference with the bladder function.

Thus in future labours should the sac of waters be ruptured, or frequent examinations have been made, or attempts at delivery have occurred, previous to coming under observation for operation, the cutting off of the peritoneal cavity by these adhesions enables delivery by Cæsarean section to be safely undertaken.

He argues that from his experience of 30 patients cured of sterility by the attachment of the fundus uteri to the anterior abdominal wall, who have gone through pregnancy and parturition without an abdominal symptom, enables him to regard objecters with indifference.

He concludes his interesting paper as follows:—"That some such method of operating must take the place of sterilization and hysterectomy, and other barbarities, I have a firm conviction. They must disappear with symphysiotomy, craniotomy of the living child, and the use of the clamp in gynæcological operations." D.J.E.

GYNÆCOLOGY.

UNDER THE CHARGE OF DRS. GARDNER, CHIPMAN, AND LOCKHART.

SARCOMA OF VULVA.

BLAIR, BELL. "Sarcoma of the Vulva, including the account of a case of Spindle-celled Sarcoma of the Labium Minus." *Journal of Obstetrics and Gynæcology* of the British Empire, October, 1907.

Dr. Blair Bell gives an exhaustive review of all cases of pure sarcoma of the vulva reported up to date with a photograph of the author's patient with the disease in situ, together with good microphotography of the diseased tissue.

The list includes 21 cases, of which the age is given in 18, showing that the age incidence is the same in vulvar sarcoma as it is in carcinoma of the same parts, viz.: 30-50 years. The usual site is the labia majora and the disease is of the myxomatous or mixed-celled variety in the majority of the cases. The prognosis is doubtful, but is probably the same as when sarcoma attacks the surface in other parts of the body.

JELLETT, HENRY. "After-history of a case of Primary Sarcoma of the Vagïna." *Empire Journal,* October, 1907.

The patient was operated on in August, 1903, for primary sarcoma which extended completely around the lower third of the vagina. When the case was first published (*Empire Journal,* March, 1904), Jellett could only collect reports of 39 cases, and of these only one was of the infiltrating variety, this case being reported by Spiegelberg in 1872. The operation terminated fatally. Of the remaining 37 cases, death resulted, either from extension without operation or from recurrence, in 31 women. Five cases were observed for from 2½-11 years and one for 10 months without showing signs of recurrence. Jellett's own patient is still alive and well.

SUPPURATION OF THE OVARY.

OLIVER, JAS. "A study of suppuration of the ovary, with illustrative cases." *Empire Journal,* November, 1907.

The author first gives many details regarding the ovary and shows that, owing to all of the blood-vessels entering the ovary through a pedicle, no accessory supply is possible. Therefore, interference with this source of supply is readily effected and thus devitalisation with pus formation is favoured.

Ovarian abscess may be "pure," where it is not preceded by any necrotic change, or "mixed" where such change has taken place. A "pure" abcess is rarely larger than an orange, while the "mixed" variety may reach the size of a full term pregnant uterus. An abscess of the ovary is usually unilocular, this being an evidence of the unlikelihood of the abscess having been formed by the coalescence of several Graafian follicles.

The pus may have formed in early married life and give but little subsequent evidence of its existence, the patient seeking advice on account of her sterility. The swelling produced is globular and the great size of the "mixed" variety is due to the condition of the ovary previous to its infection, as for example where this takes place in an ovarian tumour.

When caused by the invasion of virulent micro-organisms, its course may be very acute. In 36 hours after infection, there is a rise of temperature and this is followed by a chill within a very few days, this latter denoting the liquifaction of the contents of the ovary. The temperature then rapidly falls to normal, but a more or less febrile condition may be kept up for weeks. The other symptoms are pain, tenderness, vomiting and acceleration of pulse-rate, and, while amenorrhœa

accompanies tubercular abscess, menorrhagia and metrorrhagia are often seen where the infection is by some other micro-organism than the tubercle bacillus. When rupture into the general peritoneal cavity takes place, it usually does so within the first ten days after infection.

Several illustrative cases are related in which treatment by removing the offending organ through an abdominal incision was successfully carried out.

HYSTEROPEXY.

TAYLOR, F. E. "On the formation of a 'Fundal' or 'Suspensory ligament after hysteropexy and its dangers." *Pract.*, December, 1907.

Hysteropexy is a safe and reliable operation for posterior displacements of the uterus, but for prolapse it cannot be depended on, as it is liable to be followed by recurrence.

The operation may be divided into three groups, viz.:—(1) Indirect Fixation, where the stumps of the tubes or broad ligaments are united to the abdominal wall. (2) Lateral Direct Fixation, where the sutures are passed through the round or broad ligaments, attaching them to the anterior abdominal wall at the sides of the incision. (3) Median Direct Fixation, in which the uterus is sutured to the abdominal wall immediately beneath the incision.

The term "hysteropexy" includes ventro-fixation, in which the fascia or whole thickness of the abdominal wall is included by the suture, and ventro-suspension in which only the peritoneum is so included. In the latter, a tongue of peritoneum is drawn down, forming a "fundal" or "suspensory" ligament.

Three cases are reported where uteri, the subjects of hysteropexy, had to be removed by the author for pain, menorrhagia, etc; and Olshausen, Jacobs, Kreutzman, Wallace and others have also performed abdominal section for obstruction of the bowels caused by the band thus produced. The fixation operation undoubtedly interferes with future pregnancies while the pure suspensory operation does not do so.

INTER-DEPENDENCE OF OVARIES AND UTERUS UPON EACH OTHER.

CARMICHAEL and MARSHALL. "The co-relation of Ovarian and Uterine Functions." *British Medical Journal*, November 30th, 1907.

The authors give details of various experiments on animals, showing that:—

1. Removal of the ovaries from young animals prevents the development of the uterus and tubes, these remaining in an infantile con-

dition. The subsequent growth and nutrition of these animals appear to be unaffected.

2. Removal of the ovaries from adult animals leads to fibrous degeneration of the uterus and tubes, most marked in the mucous membrane, but does not affect the subsequent general health or nutrition.

3. Removal of the uterus from young animals does not affect the further development of the ovaries, these being capable of functionating normally in every way when adult life is reached.

4. Removal of the uterus from an adult has no effect on the function or structure of the ovaries, if their vascular connections remain intact.

GYNAECOLOGICAL OPERATIONS UPON THE AGED.

Malcolm, John D. "Hysterectomy and appendectomy performed on a patient aged 74. Recovery." *British Medical Journal*, November 11th, 1907.

The patient was a strong, well nourished woman 74 years of age, who had suffered from gastric disturbances for several years and from increasing abdominal distension and constipation for the last twelve months. The pelvis was nearly filled by a large, rounded tumour which was fixed and was attached to the uterus. It appeared to be a soft-solid or cystic mass. Menstruation had been regular and free, but not excessive and had ceased altogether at 53.

At operation, a soft, well-nourished fibro-myoma was removed, together with the whole uterus, from the right side of which the tumour was seen to be growing. Coils of small intestine were adherent to the right side of the tumour and contained the appendix embedded amongst them. These adhesions were separated and the appendix, which contained a small black concretion near its attachment to the cæcum, was amputated. The abdominal sutures were removed on the eighth day as the wound appeared to be firmly healed. The next day, part of this was found to be broken open and, while washing the parts in order to re-insert sutures, the whole wound broke down and the intestines protruded. The edges were re-united and perfect union resulted, the sutures being removed on the 14th day and the patient made an uninterrupted recovery.

Microscopic examination of the tumour showed no trace of sarcomatous or other malignant degeneration, but "here and there a few cells had become indefinite in outline."

As a rule, fibroids shrink and tend to become calcareous after the menopause. The softness and youthful appearance of this specimen may be explained by its proximity to the cervical and uterine vessels insuring a free supply of nutriment.

UTERUS BICORNUATE.

An interesting case of this malformation is reported by Dr. G. P. Mills in the *British Medical Journal* for November 30th, 1907.

The patient was 16 years of age and had menstruated first when she was 15 years and 5 months old, her fifth period having started fifteen days before her admission to the hospital. The flow was free and of good quantity, but was accompanied by pain, the pain increasing with each period. In addition to the pain in the abdomen, the patient complained of it "shooting down the back passage." She vomited twice at the onset of her last period and the bowels had only been opened once since then. On admission, no sign of peritonitis was observed, the abdomen being soft and not distended, but an ovoid mass, the size of an hen's egg, with its long axis lying horizontally, was felt in the right iliac fossa. This mass was moveable in a vertical direction, but not laterally and it was hard and not sensitive. Per rectum a smooth, rounded mass, the size of a large cocoanut could be felt bulging down the anterior rectal wall. This was tense and elastic and connected with the mass in the abdomen. The hymen was intact, but perforated and a large mass was seen to be bulging down into the vagina. The cervix was lying to the left of the middle line and found to be connected to the tumour. At the operation, the uterus and mass were removed and upon examination, the latter was seen to be the right horn of a bicornuate uterus distended with blood which was kept from escaping into the uterus by the point of connection of the horn with the uterus being imperforate.

F. A. L. LOCKHART.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

(*Continued from last issue.*)

F. A. L. LOCKHART, M.D. Two points in this connexion interest me, first the cause of ectopic gestation and second the early diagnosis. A great many authorities claim that a healthy tube is more likely to lodge an ovum than a diseased one, but I was very glad to hear Dr. Chipman state exactly the contrary. In the vast majority of my own cases the patients had previously given histories of having had at least one attack of inflammation or pain in the pelvis which pointed to some pre-inflammatory disease in the tube. The points which Dr. Chipman

raised in regard to diagnosis I think were extremely well taken and I must say that I am always on the lookout for cases of ectopic gestation for if you do not diagnose a case the results are extremely serious to the patient. I think it is always better to be on guard for serious trouble and be mistaken than expose your patient to risk. Where a patient comes to me who is having irregular uterine hæmorrhages, losing a small quantity of blood each day with pain on either side I make up my mind that that patient has an ectopic gestation. I am very glad that the majority of practitioners are taking Dr. Smith's advice and sending all suspicious cases to a specialist. One patient I remember, who had suffered from menorrhagia and metrorrhagia for four or five years; I examined her very thoroughly, but could find no trace of serious inflammatory trouble in the tubes. She was subsequently seen by Dr. Berwick, who advised operation. Later she became pregnant. I saw her and on opening we found a ruptured gestation sac; the only symptoms were pain and irregular hæmorrhages and a small mass could be felt at one side.

W. W. Chipman, M.D. I only wish to thank the Society for the kind way in which they have listened to the paper; and especially to thank the gentlemen who have so kindly and interestingly discussed it. As to the point of the dilating and dilated cervical canal, it is of the greatest diagnostic service in cases of early uterine abortion. In the later cases mentioned by Dr. Lapthorn Smith the condition of the cervical canal is not of such great value, as we have already the presence of the extra-uterine tumour. A careful analysis of the urine was made. In the two specimens the percentage of albumin was very great and there were numerous casts, both finely and coarsely granular, but no hyalin casts, some blood—in fact all the evidence pointed to an extremely acute nephritis. The question of decortification of the kidney was broached, but I did not consider it in this case a wise procedure. So far as my own knowledge goes I am rather inclined to criticize it unfavourably, for the reason that I do not quite understand the rationale of the procedure. In the specimens that Dr. Klotz has shown there are only a few small areas of the outer zone of the cortex which are at all normal. For the greater part the whole outer zone is dead, this death due, as he has shown us, to a peripheral thrombosis in the parenchymatous vessels. This zone of necrosis illustrates very forcibly how trifling a blood-supply the cortex must receive from the kidney capsule. This being so, and the whole object of decortification being, after the congestion is relieved, to establish a greater blood-supply, I do not see how the argument follows. Surgeons, especially German surgeons, claim to have got good results

from this operation, but as I understand it, the concensus of opinion in America is rather to regard the operation as of little, if any, value.

The fourth regular meeting of the Society was held Friday evening, November 15th, 1907, Dr. Wesley Mills, President, in the chair.

PATENT DUCTUS ARTERIOSUS.

W. F. Hamilton, M.D., presented this case a report of which appears in the number of this Journal.

A. D. Blackader, M.D.:—Patency of the ductus arteriosus would appear to be due to increased pressure either in the pulmonary artery arising from some interference with the pulmonary circulation, or in the aorta owing to some congenital defect. I would be glad to learn from Dr. Hamilton, who has so carefully studied this very interesting case in which class he feels inclined to place it.

F. J. Shepherd, M.D.:—Dr. Hamilton is to be congratulated in bringing such an interesting case before the society. Dr. Munro, of Boston, has lately advocated cutting down, upon the heart and obliterating by ligature the ductus arteriosus. He has made many experiments in this connection on animals, but not yet on human beings. Congenital anomalies are rarely single and in stopping the circulation through the duct other arrests of development which might exist would no doubt have to the reckoned with.

ACCESSORY CARUNCLE.

Geo. H. Mathewson, M.D.:—The specimen was taken from a woman aged 21. It was a small tumour situated in the inner angle of the left eye between the margins of the eyelids. It was present from birth and had grown but little since. There was no pain or discomfort. The tumour was found to be attached to the margin of the upper lid, by a pedicle, at a point just to the nasal side of the punctum lacrymale. It was removed by cutting through the pedicle with fine scissors. Microscopically, it showed fibrous tissue and fat in abundance with many large sebaceous glands and hair follicles with some striated and some non-striated muscles.

DISCHARGE FROM VAGINA.

C. C. Gurd, M.D.:—Showed a baby aged 12 days, under the care of Dr. Sophie Pouchofsky, with a bloody discharge from the vagina beginning on the third day. The child is perfectly normal; the breasts are if anything more developed than usual.

W. W. Chipman, M.D.:—This case of Dr. Gurd's is extremely interesting, and is somewhat rare. It does occur occasionally, I believe,

in new-born children, and the blood comes from the mucosa, the primitive mucosa of the uterus. I think it has to do with the establishment of the systemic circulation. It is a fact, I believe, that the general blood pressure of the infant suddenly falls with the establishment of the pulmonary circulation. This pressure, however, soon rises again, and to a higher point than ever before. In other words, the general blood-pressure in extra-uterine life is considerably greater than in intra-uterine life. These facts give us, I think, the best explanation of these early vaginal hæmorrhages. The sudden fall and subsequent rise in blood pressure ruptures some of the small capillaries of the primitive uterine mucosa, and so gives rise to the hæmorrhage. It is always very difficult in these cases to ascertain the exact source of the bleeding. I have seen one such case where, after a distinct discharge of blood from the vagina, the infant died. At autopsy it was found that the rudimentary uterine mucosa was greatly congested, a number of the superficial capillaries were ruptured, and the hæmorrhage had occurred from the mucosal surface.

EXPERIMENTAL WORK UPON PERITONEAL ADHESIONS.

E. W. Archibald, M.D., and J. L. D. Mason, M.D.:—Dr. Archibald read the paper of the evening.

F. J. Shepherd, M.D.:—I should like to express my appreciation of this excellent paper relating to experiments extending over a series of years, and which have not been without results. If a perfect paint has not been discovered to prevent these raw surfaces adhering, Dr. Archibald has at least advanced some steps nearer that goal. What we have heard is of the greatest service to all of us and it impresses us with the excellent work of Dr. Archibald—purely scientific work, that is really the source of all true science. One thing he has emphasized, viz., the uselessness and danger of gauze drainage. Many surgeons have felt for a long time that gauze packing in acute cases was a dangerous proceeding and this danger Dr. Archibald has brought personally before us.

A. Lapthorn Smith, M.D.:—One question which interests me is that of the dry method of preventing adhesions. I have noticed operators dusting some powder such as aristol on raw surfaces. For myself I have never tried it for where I find a mass of adhesions which cause little or no trouble, I think it better to leave them alone; because if you tear them up they are bound to adhere again at once; while it is surprising to find how well things will go on in the intestine under what we would think were very difficult conditions. I have torn off large areas of the peritoneum from the intestine and yet the patient has lived

for many years with no trouble from constipation, etc. In some of these cases I had to use the actual cautery to stop the bleeding. I have often wondered whether the filling of the abdomen with hot salt solution, where we have considerable raw surface on the intestines, would not dilute this lymph which is poured out, and whether when diluted sufficiently it would not be absorbed instead of forming the glue which is the cause of adhesions. With regard to gauze I have never used it, always holding that it is followed by considerable irritation. With regard to the omentum seemingly acting as a policeman, I have been surprised at the way the omentum will find out trouble which is going on in the peritoneal cavity, and wall it off. I have seen it winding itself about an appendix, or getting round a tube which was becoming dangerous, and going up to the upper part of the abdomen and fastening itself there. When I have raw surfaces, such for instance as follow the tearing up of the uterus where the tubes and ovaries have been bound down over a large surface in Douglas' cul-de-sac, I put the omentum over the raw surface as well as I can and it adheres over this and the patients do very well.

W. W. CHIPMAN, M.D.:—Dr. Archibald has set us rather an ideal in the way of experimental work. It has been painstaking, thorough and scientific. What has struck me most is his wise and generous use of *control* experiments. It is these controls which make this piece of experimental work especially valuable, for the reason that the results must be in consequence valid. One point I should like to ask Dr. Archibald about is this. We know that peritoneal adhesions re-form rapidly after the abdomen is closed, contiguous, raw surfaces becoming speedily glued together. This glueing together is brought about by the lymph exudate, and occurs more rapidly where this exudate is of high specific gravity, that is, where it contains a great number of leucocytes. Where the exudate is of lower specific gravity there are fewer leucocytes, and accordingly less fibrin ferment. In consequence clotting, and the resultant adhesion of surfaces, must occur much more slowly. It is for this reason, in order to secure the dilution of this plastic lymph, to make it of lower specific gravity, that I have been accustomed to use for the purpose of preventing the formation of peritoneal adhesions, the ordinary normal salt solution. I feel that where the peritoneal cavity is left filled with this solution adhesions are less likely to reform, and this for two reasons. The salt solution as an inert body holds apart neighbouring raw surfaces, prevents them falling together; and again it dilutes the plastic lymph which is thrown out and so makes agglutination and clotting to occur more slowly and imperfectly. I

should like to ask Dr. Archibald's opinion in this matter, as to whether, in the light of his experimental work, he considers the empirical use of the salt solution as justified.

Wm. Gardner, M.D.:—In adding my hearty word of appreciation I would like to ask Dr. Archibald if he considered the use of oil in his experiments. Several years ago in watching Martin, then of Berlin, doing a gynæcological operation to loosen adhesions, he was in the habit at the conclusion of the operation of passing in a sponge soaked with oil and I should like to know if this had been considered.

C. K. P. Henry, M.D.:—In connection with Dr. Archibald's control test in animals, the question of following out laparotomies in the human with the possibility of determining a final result is not very often observed. Occasionally one sees a case where an operation had been done at one time for some purulent trouble and later, on opening the abdomen, no adhesions were present. Consequently it seems to me that the use of gelatin as described, at least in the human, will be somewhat problematical for some time to come; the results obtained in animals can hardly be those obtained in the human subject. In a case of appendicitis I had in January, 1903, there was well marked peritonitis of a couple of days standing and at operation a large quantity of pus was removed from both flanks. The peritoneal cavity was irrigated and several drainage tubes were used with large gauze drains. The case recovered completely. In the spring of 1905 the abdomen was again opened. At this time the muscles had become widely separated along the course of the drainage tube. No bowel was found immediately adherent to the scar though the abdomen was not explored to see whether there were adhesions elsewhere. In 1907 the patient again had the abdomen opened in the medium line for the extirpation of a large abscess cavity in connection with the right tube and ovary; there had been two attacks of peritonitis with abscess formation in the pouch of Douglas with drainage through the posterior vaginal fornix. At this operation the abdomen was carefully gone over to see if there were any adhesions present from the primary peritonitis. The scar was normal without any adhesion of bowel, the visceral and the parietal peritoneum were found totally unattached at any point. Consequently it can be seen that in many of the cases even where this solution can be used it would be still unjustifiable to conclude that the solution used had been the means of preventing readhesion should one have a chance to reopen the abdomen later find the peritoneum unattached.

G. H. Mathewson, M.D.:—As regards the effect of saline in preventing adhesions, ophthalmology has taught us that it has no or very

little effect in this connection. Where the two conjunctival surfaces are bathed with saline yet adhesions are sure to form between abraded surfaces unless we keep passing a probe covered with vaselin across the two opposing surfaces. This of course in the presence of infection, for it is impossible to keep the conjunctival sac aseptic.

WESLEY MILLS, M.D.:—I desire as an experimenter on animals to express my admiration of the patience and perseverance with which Dr. Archibald has carried out this and to rejoice in the enlightenment which it has been successful in producing; and I hope that his paper may lead to others of a similar kind. If such contributions were more frequent a new era could dawn in the history of this Society.

F. W. ENGLAND, M.D.:—Dr. Archibald candidly states that up to the present time he has not been able to find a substance of any material benefit in preventing peritoneal adhesions in the presence of infection. And this is notwithstanding his thorough and most excellent experimental work. Dr. Archibald has given us a definite means of preventing peritoneal adhesions after abdominal operations in aseptic conditions and it is to be hoped that he will continue his good work and at a later date be able to give us a method by means of which we can accomplish much even in dealing with desperate cases of septic peritonitis.

E. W. ARCHIBALD, M.D.:—With regard to gauze, I came to the very settled conviction that its use in the general peritoneal cavity, that is apart from abcess, was quite unjustified, unless one wanted to provoke adhesions; certainly there was nothing more certain to cause them; and I think it is with justice that surgeons now-a-days have come to abandon its use very largely. As to the dry method, the rubbing in of a powder, I used this (iodomol), following Robert Morris, in six cases; adhesions recurred in three, in two the result was indecisive; and in one there was partial success. This I thought negatived the claims of Morris in favour of Aristol powder.

As to the leaving of adhesions alone, that is, of course, what one will do, if they are not causing trouble. With regard to the cautery, it is true that, when the actual cautery is used adhesions are very apt not to follow, because where you have necrosis of tissue, union by primary intention is prevented. As to salt solution this was the original substance used to prevent adhesions. It was employed extensively in Germany; but both experimental and clinical observation accumulated to show that it was insufficient, absorption being too rapid. The results proved almost uniformly disappointing. It is true that the early hours are above all important; it is the clotting which it is necessary to prevent. Once surfaces are adherent by the clotting of

fibrin, this remain adherent by the interlacing hold of the mass of fibrin filaments, even after the fluid exudate is reabsorbed.

In reply to Dr. Shaw, what I said in regard to the gelatin was that mucilage, not gum arabic, was a vegetable gelatin. Dr. Gardner referred to the use of oil. This substance has been used by several experimenters in the past, with the result that it was found to be too irritating. Olive oil was used in animals; but as to its employment in the human I have no knowledge. These experiments were carried out with the view of preventing the re-adhesion of surface which had been already adherent, not to prevent adhesions which had not already formed; that is the gelatin is to be used at secondary operations only, and not to prevent adhesions which are only likely to form, say from a peritonitis. I admit that the value of the gelatin would be problematical if it were used at a first operation; and indeed, I stated very explicitly that, in the presence of active infection, it was entirely useless to employ the gelatin, or, as I believe, any other kind of preventive. Under such circumstances, any application would, I think, be more likely to hinder Nature in her struggle with the infection than to help her.

The fifth regular meeting of the Society was held Friday evening, December 6th, 1907, Dr. Wesley Mills, President, in the Chair.

The following living cases were presented before the Society:

N. Viner, M.D.:—"Blue Baby," 17 years old.

G. E. Armstrong, M.D.:—Pancreatic cyst.

A. E. Garrow, M.D.:—I would like to know if there was any history of trauma in this case.

J. M. Elder, M.D.:—The explanation in regard to the jaundice in this case may be a correct one. Mayo Robson says that jaundice is a common symptom in the course of pancreatic cyst, and his explanation of it is that you get practically an obstructive jaundice from pressure upon the canal of Wirsung, where the two ducts join.

H. A. Lafleur, M.D.:—This man was under my observation for quite a while and was also seen by some of my colleagues. He seemed rather a young man to have a carcinoma of the stomach and the local conditions did not quite correspond to what one generally finds and particularly the fact that it had an elastic feel. Where we were led astray was in laying too much stress upon the stomach contents. It was really upon the half dozen examinations we made, always with the same results and in view of the rapid emaciation that we came to the conclusion by exclusion that it was probably a carcinoma of the stomach. I regret to say that having this opinion we did not make any examina-

tion of the stools for fat. I suppose the explanation of the vomiting was that pressure on the stomach caused stasis as well as the presence of lactid acid.

F. R. ENGLAND, M.D.:—I would like to ask if Dr. Armstrong associates the fact of jaundice a year ago with the diagnosis.

TORTICOLLIS SECONDARY TO HYPERTROPIA.

W. GORDON M. BYERS, M.D.:—I thought perhaps the members of this Society would be interested in seeing this very marked example of the condition to which Landolt has given the name "Ocular Torticollis." The primary lesion is a vertical separation of the eyes of from 40° to 45°; and the tilting of the head to the side is to overcome the diplopia which must necessarily arise when the erect position is maintained. Doctor Turner has gone over the case very carefully, and assures me that there is no other possible cause for the torticollis, and no fixed changes in the spine. Other cases of this kind have been noted secondary to astigmatism, and have been cured by correcting lenses. I propose advancing the superior rectus of the right eye, and later tenotomizing the superior rectus of the opposite side if necessary.

W. G. TURNER, M.D.:—The muscle action is quite symmetrical on both sides; the X-Rays showed a little asymmetry in one transverse process, but the condition is entirely functional because the correction is so readily obtained without spasm of any muscle involved.

J. M. ELDER, M.D.:—I would like to ask if there is any actual shortening of the sterno-mastoid muscle.

F. M. FRY, M.D.:—I would like to ask Dr. Byers at what age the muscular error appeared; has it always been that way or was it brought on by close vision at an early age?

RENAL TUBERCULOSIS.

R. P. CAMPBELL, M.D., read the paper of the evening.

WESLEY MILLS, M.D.:—I desire to congratulate Dr. Campbell, one of our youngest members, on such thorough work so admirably presented; and I could have wished that all the oldest members of the Society had been here that they might rejoice together at the progress of the profession. We are passing rapidly from fogginess and uncertainty to positive scientific accuracy, and the manner in which knowledge and skill has been combined in this case is certainly most encouraging for the future.

J. M. ELDER, M.D.:—I should like to add my word of appreciation of this paper, and also to express my personal gratitude to Dr. Campbell for the great assistance he has given us in the solution of the problems connected with renal tuberculosis. I think we all know how

difficult it is to come to a conclusion just when one should attempt nephrectomy and when one should not. Nephrectomy should never be done on a bad kidney until we know the other is competent to do the work. I have removed, with fatal results, one kidney, where the other was almost as bad. If catheterization shows both kidneys diseased we are hardly justified in removing what we deem to be the worse of the two. With regard to the treatment of renal tuberculosis, Dr. Armstrong has raised a point which has been much discussed, and it does seem rather radical treatment to remove a whole kidney for what turns out to be a very small lesion. It has been pointed out that when a patient has renal turberculosis he will very shortly get tuberculosis of the bladder—a termination one hardly would wish for and for which so little can be done. We must be prepared to take rather greater risks in the kidney in order to get rid of a tubercular cystitis. On the other hand, the English surgeons are conservative, and Henry Morris advocates splitting the kidney, taking care to control all hæmorrhage, and doing a partial nephrectomy, removing only the small piece of diseased kidney tissue. This might be done in more of our cases instead of a complete nephrectomy, and with perhaps better results and certainly less risk.

W. Gardner, M.D.:—I wish to add my word of admiration for this splendid piece of work with reference to the question of operation for tuberculosis of the kidney or other organ or viscus and the joints. I should like to ask if it has been the experience of any members of the Society that such intervention has been speedily followed by generalized tuberculosis or acute tuberculosis in some other, perhaps distant organ as for instance the brain. I have seen somewhere the opinion expressed that such is sometimes the case. Some years ago, I opened a large acute intraperitoneal tuberculous collection of pus. At the time of operation the patient, a girl of 16, had high temperature. A few days after operation she developed tubercular meningitis which ran a typical course to death in three weeks.

M. Lauterman:—I note by the charts that there is only one instance in which the freezing point of the urine was recorded and I would like to ask Dr. Campbell's opinion of this method and whether he has used it at all regularly and if he has any opinion as to whether the method has proved all that has been claimed for it.

(To be continued.)

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ON A GIANT-CELLED RHABDOMYO SARCOMA FROM THE TROUT.

BY

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(From the Pathological Laboratory, Royal Victoria Hospital.)

The subject of tumours derived from striated muscle is one that is still involved in considerable uncertainty. French pathologists of the present time, more particularly, report numerous cases of sarcoma which they regard as directly derived from muscle tissue elements, but this view is not by any means universally accepted. It may be laid down as a general rule that the more highly differentiated a tissue, the less is its tendency to afford neoplasms. When we encounter indubitable tumours, containing more or less imperfect but recognizable striated muscle elements, these, with the rare exceptions, are not in association with the ordinary muscles of the body, but are of the nature of mixed tumours, derived, it would seem, by displacement of cells capable of giving rise to striated muscle elements during the course of development. Most often in such tumours there is an admixture of cells of other orders, cells of a sarcomatous type, gland cells and, it may be, bone and cartilage and other tissue elements.

Another feature that we may lay down as characteristic of tumours in general is that the cells composing those tumours represent more or less faithfully some stage of development short of the perfect adult type. If we study the development of striated muscle, we find that there is a pre-existing stage in which the sarcoblasts, the embryonic cells giving rise to this particular tissue, become multinucleate, become, in short, giant cells. In fact, the adult muscle fibre is itself multinucleate. We should expect, therefore, were tumours derived from striated muscle at all common, to find giant-celled growths originating in association with the striated muscle in man. As a matter of fact, in the ordinary rhabdomyoma of man we encounter not infrequent multinucleate cells, but to my knowledge a tumour composed wholly of these,— what may

be termed a pure giant-celled rhabdomyosarcoma is unknown, or, at least, has so far failed to gain recognition as a separate entity. By great good fortune, I am indebted to my colleague, Dr. Hamilton White, for an exquisite example of this very condition in a trout caught by him in October. The fish is the "red trout," and was caught in Balsam Lake, Montfort district, in this province. Save for the tumour, it was a well grown individual, 14 inches long, and weighed about three-quarters of a pound. It will be seen that some 4 cm. behind the main dorsal fin and 1.5 cm. in front of the posterior dorsal fin, there is, on the left side, near the middle line, a very definite tumour. When brought to the laboratory, this was covered by a healthy unbroken skin, and projected some 1.5 cm. above the general surface.

On dissection, the tumour was found to be almost spherical in shape and 3 cm. in diameter lying to the left of the dorsal spines and not attached to these. A layer of muscle appeared to pass over it, and it had a semi-fluctuating feel. It was well defined, and was easily separated from the surrounding tissue.

On section, the tumour is found to be composed almost wholly of giant cells, varying, it is true, greatly in size and shape. The smallest cells may contain but two or three nuclei, the largest, without exaggeration, many hundred. There is no definite capsule, but at the periphery there is a zone exhibiting a moderate grade of small-celled infiltration, in which the tumour cells proper infiltrate between still recognizable striated muscle elements. This infiltration, it is noted, extends between the dorsal spines to the right side to a slight extent. These more normal muscle fibres are easily distinguishable; while shrunken, they exhibit regular striation and well marked longitudinal fibrillation. The interesting part is that in making a careful study of these remarkable giant cells certain of them are of very great length as compared with their breadth, and the nuclei are gathered more particularly at one pole. Such cells recall in a very striking manner the buds or processes projecting from the muscle fibre of a mammal in the process of regeneration after injury and in not a few of them the part of the cell furthest from the grouped nuclei shows well-marked longitudinal fibrillation, while here and there irregular but distinct transverse striation is to be made out. Studying the various transitional stages, there can be no doubt that here we are dealing with a rhabdomyosarcoma, and, as I have already indicated, we have encountered a new form of muscle tumour, but one, which from embryological considerations, is also to be termed "natural" and to be expected. We have found this in one of the lower animals, and it now remains to be seen

whether this form occurs also in man, and whether in man we have to add to the list of giant-celled tumours, a type gaining its origin from voluntary muscle.

Tumours in fish are not unknown. Some twelve years ago, I received from Dr. Deeks a relatively large myxofibroma, which he had removed post mortem from a cod, caught in the Gulf. If I mistake not, I brought the case before the Society. Recently, in connexion with the study of the distribution of malignant growths throughout the animal kingdom, there has been an increased interest in the subject, and several cases have been reported of tumours of different orders found in fish.

The majority of these cases, curiously enough, are of adenomatous and even of definitely carcinomatous type (Scott, Gilruth, Plehn, Pick, and Bashford's first case). Judging from Dr. Marianne Plehn and Pick, and Poll's cases, their most common situation in the salmonidæ is below the lower jaw in the floor of the mouth. This position and their histological structure suggests strongly an origin from thyroid tissue. Bashford records a malignant adenoma of the peritoneal cavity of the Gurnard. The only sarcomatous tumour to which I have found reference is Bashford's second case, that of a spindle-celled sarcoma of the codfish, the figure given by him, with its loose arrangement of cells, shows some similarity to our own specimen of myxofibroma in the same fish. So far, I have been unable to come across the description of any case of a fish tumour at all resembling that here described.

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EXPERIMENTAL "WORK-ARTERIOSCLEROSIS."

BY

OSKAR KLOTZ, M.D.,

(From the Pathological Laboratory of the Royal Victoria Hospital.)

The experimental work in arteriosclerosis has, up to the present, been mainly of the nature of mechanically injuring the vessels, or else by introducing foreign toxic substances into the animal body. Of the latter type much has been written in the last four years, and it has been shown that substances like adrenalin chloride, barium chloride,

digitalin and nicotine, all of which produce high pressure in the arterial system, are capable of bringing about definite arterial lesions. It has also been shown that certain bacterial toxins act on the vessel walls, either by producing degenerative changes, or else in stimulating the proliferation of certain cells.

There has been a considerable controversy as to the nature of these arterial lesions, whether they were the result of the toxic substances, acting directly upon the tissue cells, or whether their mechanical effect of increasing the blood pressure was capable of bringing about these changes.

Clinically, it has been noted that in the adult, the vessels of the more active organs show hypertrophy and sclerosis earlier than in the less active parts. In right-handed persons the radial arteries are considerably more sclerosed than those on the left side, and the reverse is true in left-handed people. Similarly, those whose occupation requires them to be constantly walking around and on their feet show the most advanced arterial changes in the vessels of the legs. These facts point to the prominent part that is played by work, in the production of arteriosclerosis, but still the question arises whether in a healthy vessel increased work alone can bring about sclerotic changes, or whether it is necessary to couple the factor with the effect of toxic agents.

It was my endeavour to throw some light on this question by experimental means. I chose healthy, nine months old rabbits to carry on the experiments. The first animal was treated for one hundred and thirty days, by suspending him by the hind legs for three minutes each day. The endeavour was to increase the pressure and the mechanical stress in the arteries, without employing any drugs. By inverting the animal, the pressure in the thoracic oarta and in the arch is decidedly increased over that which normally exists in the animal. At the beginning, the animal did not seem to be worried by treatment, but later on it showed signs of dyspnœa, and the heart beat was accelerated. Towards the end it was noted that the animal was much fatigued after each treatment.

At autopsy the following was noted:—There were no lesions in the vessels of the brain and no hæmorrhages had occurred in this organ. The carotid vessels had a remarkable appearance; the arteries were enlarged to about twice their size, and looked like sclerosed radials. There were distinct beadings on the vessels, which were most marked just above their origin from the aorta. These beadings were white in colour and encircled the vessels in transverse rings. Similar appearances were also present on the subclavian and brachial vessels. The

beadings were distinctly palpable, while the vessels in general were firmer than normal. The amount of change in these arteries diminished after the bifurcation of the common carotids, though it was still apparent in some of the smaller branches.

Thorax and Abdomen.—The lungs were healthy and without change. The heart showed an enlargement of, at least, one and one-half times its normal size. The ascending aorta had its walls thickened, and was larger than normal. This increased size was apparent as far as the middle of the arch, or just beyond the opening of the left brachial. The wall felt firm and nodular, and did not collapse when its contents were removed. Opposite the 6th rib the vessel again dilated to twice its size, forming a fusiform aneurysm as far as the diaphragm. This aneurysmal dilatation had firm and brittle walls, in which concentric rings could be distinguished passing about the vessel. Below the diaphragm the aorta again became smaller, but showed thickening of its coat, which was visible as far as the right renal artery. The beginning of the cœliac axis was also sclerosed, though no changes were noted in the branches of this vessel. The renal arteries were normal in appearance, and below them the aorta, too, was without change. There was no change to be noted in the iliac arteries, nor the vessels of the legs, nor did the viscera of the abdomen exhibit any microscopical lesions.

We have, therefore, produced macroscopical changes in the aorta and its branches above the renal vessels. In these changes the aorta is chiefly involved, while the carotids and the vessels of the neck are also sclerosed. Consequent upon the weakening of the aortic wall by sclerosis, a fusiform aneurysm developed in the thoracic aorta.

Microscopical.

Ascending Aorta.—The aortic wall was hypertrophied, the thickening occurring in the intima and possibly in the media. The media, where it was apparently thickened, was normal in structure and showed the alternating layers of elastic fibres and muscle tissue. The intima, where thickened, showed the hypertrophy to be in the muscle elements (of the musculo-elastic layer). There was no connective tissue proliferation to be found. With the intimal thickening there was everywhere a process of degeneration accompanying it. This degeneration in the mildest form occurred close to the internal elastic lamina, and, in the more advanced types, extended closer to the endothelial surface. The muscle cells themselves were degenerating and disintegrating, leaving areas of non-cellular debris. These areas showed many spicules

of crystals like those of calcium salts. Many of the cells were vacuolated as if containing drops of fat. In one area the media, too, showed degeneration where the muscle cells were entirely wanting, while the elastic bands were thrown into prominence by a darker blue staining, due to a calcification. Fractures were occasionally seen in the elastic laminæ. Remarkable cells were found between these calcified elastic bands. These cells were large with a spherical media and lay in a homogeneous looking matrix with vacuoles about them. One was reminded of the appearance of cartilage cells, though definite cartilage was not to be made out.

A study of these sections convinces one that the muscular changes are primary. The rupture and changes in the elastic fibres are secondary.

Descending aorta just above diaphragm.—The vessel wall was in its greatest extent narrowed. Only short stretches of normal looking aortic wall were seen. The rest of the wall showed a hypertrophied intima, in which the musculo-elastic layer was thickened, while the media was much narrowed. The middle zone of the media showed a band of calcification almost encircling the vessel. There was a narrow strip of media on both sides of the calcified band, which showed the muscle cells wanting to a great extent, while the elastic fibres lay more closely together. The adventitia nowhere showed change. In the calcified band of the media no cells were to be made out. This degenerative change in the descending aorta resembled that produced in the aorta by adrenalin chloride.

Carotids.—In the carotids the changes found were principally located in the intima. The media showed no changes in any part, save such as is produced by the compression of the thickened intima and slightly fatty degeneration along the border of the internal elastic lamina.

The intima was in parts normal, consisting of a single layer of endothelium lying upon the internal elastic lamina. In other parts there was a thickening of this membrane to that exceeding the thickness of the media. This thickened portion of the intima was made up of a superficial and circularly disposed layer of connective tissue (possibly of endothelial origin), while beneath this was a thick layer of longitudinally disposed muscle fibres, with extensive fatty degeneration in them. In this deeper layer of the intima many of the muscle cells had entirely disappeared, leaving behind a granular debris mixed with minute fatty granules. In some places this thickened intima occupied one-half the circumference of the vessel.

We have, therefore, in this experiment been able to reproduce by physical means two kinds of changes in the arterial walls. The one is

isolated in the media without intimal change and consists of a purely degenerative process, with death of the muscular elements and calcification of the involved areas, including the elastic fibres. The other change is isolated to the intima, and consists mainly of a proliferation of the tissue, while a secondary fatty degeneration has occurred in the newly formed tissue.

In the lesions of the first type involving the media there has also occurred the production of aneurysm. This, as we have previously pointed out, is the common result of severe degenerative changes in the media.

I believe, therefore, that we may conclude from these experiments that work plays a very important rôle in the production of arteriosclerosis of different characters, and that even in vessels of different histological structure sclerotic changes can be brought about by increasing the work of the artery. And further, as a consequence to certain changes, degenerative in character, taking place as the result of increased work in the media of the vessels, aneurysms may result.

We understand from Professor J. J. Mackenzie that Dr. Harvey of Toronto, working at Cambridge, has by different methods of increasing arterial pressure obtained marked changes in the arteries. As to the character of these changes, we have no information beyond that they are arteriosclerotic. We gather from Professor Mackenzie's letter that this paper has just been presented to the Royal Society of London.

TRYPANOSOMES IN MONTREAL RATS.

BY

OSKAR, KLOTZ, M.D.

(From the Pathological Laboratory of the Royal Victoria Hospital.)

After Dr. Todd's extensive report before this Society on the Trypanosomes of Central Africa Sleeping Sickness, we are apt to associate this organism with diseases in far off lands. There are, however, many varieties of trypanosomes, and it would appear that some of the animal parasites not yet fully worked out will yet be classified amongst the trypanosomes. During the winter of 1906-07, Dr. Ballah and I examined for trypanosomes some forty rats, all obtained in the same locality in Montreal. These examinations all proved negative. Recently I examined two rats from a down-town grocery, and found both of them to harbour trypanosomes in their blood in large numbers. Subsequent to this, Dr. Rankin found trypanosomes in a rat obtained at the Royal Victoria Hospital. No doubt, if an extensive search were

made, these trypanosomes would be found in a large percentage of the rats of this city.

This organism, the T. Lewisi, is a very common parasite in the ordinary house rat, some even claim that it is as widely distributed as the rat itself. Novy, of Ann Arbor, was the first to recognize the T. Lewisi in America. Since then, I learn that it has been found in Detroit, San Francisco, Philadelphia, New York, Lincoln, Seattle, Chicago and Ottawa.

A CHART FOR THE STUDY OF CONGENITAL CARDIAC DISEASES.

BY

M. E. ABBOTT, M.D.,

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(From the McGill Medical Museum.)

Mr. President and Gentlemen:—

During the past few months I have been engaged in the statistical study of some 404 cases of congenital cardiac disease. These cases have been drawn from reliable sources, and only those with post mortem report attached have been included, so that the data derived from their study are of much interest and are of value as positive statements. Some of these conclusions I hope to bring before the Society at a later date. Meantime, I take this opportunity of demonstrating to you the chart which I have used as a basis of this work. This chart, 300 copies of which have been printed, is meant for the study of the individual case, and is spaced for eleven such. For the purpose of this evening's demonstration, however, I have inserted in its columns the total figures from those cardiac defects which, both from their relative frequency and from the fact that they usually present signs or symptoms during life, may be considered of clinical importance. There are 324 such defects among the 404 cases analyzed. The form of defect is stated in the left-hand column of the chart in the space devoted to the "Lesion," and opposite to it, reading across the chart from left to right, is the total number of cases of this group in which the condition specified in the different columns, occurs. The number of cases in each group is as follows:—

(1) Localized defects of the interauricular septum (including widely patent foramen ovale), 28 cases.

(2) Localized defects of the interventricular septum, 40 cases.

(3) Complete defects of the cardiac septa, as cor biloculare, triloculare, etc., 12 cases.

(4) Complete defects of the aortic septum, 14 cases, (includes persistent arterial trunk, 8 cases, and communication between the aorta and pulmonary artery, 8 cases).

(5) Transposition of the arterial trunks, 47 cases.

(6) Congenital pulmonary stenosis, 75 cases, of which 7 cases are with closed septa, 9 with patent foramen ovale but closed interventricular septum, and 59 with defect of the interventriclar septum.

(7) Congenital pulmonary atresia, 28 cases, of which 6 are with closed interventricular septum, and 17 with defect of the interventricular septum.

(8) Aortic stenosis or atresia, 8 cases.

(9) Tricuspid stenosis or atresia, 9 cases.

(10) Patent ductus arteriosus, 19 cases.

(11) Coarctation of the aorta, 32 cases, of which 5 are of the infantile, and 27 of the adult type.

(12) Hypoplasia of the aorta, 2 cases.

The chart has three main divisions:—

I. In the first of these the group number of the case, the reference, the form of lesion, age and sex, are given. In this combined chart the maximum, minimum and mean age of each group is calculated in the age column.

II. In the second division are recorded the post mortem findings. Columns are devoted here to patency of the fœtal passages and defect of the interventricular septum, to *dilatation* or *hypoplasia* of the pulmonary artery or the aorta, to the presence of a deviation to the right or *rechtslage* of the aorta (so common an event in defects of the interventricular septum), to the incidence of arterial disease, of *acute endocarditis,* of *chronic valvular lesions,* of *associated anomalies* in the heart, vessels, or elsewhere, and to the presence of *hypertrophy* and *dilatation* of the four chambers of the heart. A column is given to the existence of a *collateral circulation,* which is common in coarctation of the aorta of the adult type, appearing here in 16 of the 17 cases, and which occurs also in those instances of pulmonary atresia in which the circulation of the lungs is not supplied through the patent ductus.

The incidence of *acute endocarditis* in cardiac defects is a point upon which statistical study is needed. The series show this event to be relatively frequent, especially in defects of the interventricular septum and in pulmonary stenosis. *Chronic endocarditis* is even commoner. *Hypertrophy* and *dilatation* of the heart cannot be read clearly from a combined chart for the different chambers are involved in the individual cases. But here, also, it is interesting to note the frequency with

which the right chambers chiefly are involved in defects of the interauricular septum, in pulmonary stenosis and atresia and transposition of the arterial trunks, while both the ventricles but chiefly the right are enlarged in defects of the interventricular septum at the base and patent ductus arteriosus, the left chambers in coarctation of the aorta. Under the heading of *Arterial Disease* it is seen that in defects of the interinterauricular septum, the pulmonary artery is often dilated and atheromatous; and in hypoplasia and coarctation of the aorta atheromatous changes, dissecting aneurysm and ruptures of the aorta are liable to supervene. Finally, the presence of *Associated Anomalies* is of great importance as pointing to a developmental origin of the defect. This is well seen in pulmonary stenosis and atresia; other anomalies were absent in all the 7 cases with closed septa which are probably of inflammatory origin, while among the 59 cases with septal defect they were noted as present in 42 instances.

III. The third division of the chart is devoted to clinical data. Under the column *Family History* are noted those conditions which have a distinct etiological bearing upon the defect, as disease of the mother or accident during pregnancy, congenital heart disease in other members of the same generation, etc., and of these there is a goodly sprinkling. Under *Personal History* the incidence of rheumatism, tuberculosis, congenital syphilis and infectious diseases with recovery is shown. Among the 324 cases there is only one presenting clear evidence of congenital syphilis. Tuberculosis is seen to be relatively common among cyanotic patients reaching early adult life, such as the subjects of pulmonary stenosis. A relatively large proportion of cyanotic cases are seen to come through the acute infections of childhood well.

Among *special symptoms*, cyanosis, clubbing, dyspnœa and dyspnœic attacks are noted. Cyanosis is divided into slight, moderate, marked, transient and late or terminal. It is marked in most of the cases of pulmonary stenosis and atresia and of transposition, and is usually absent in coarctation of the aorta and patency of the duct. Six cases of defect of the interauricular septum and four of defect of the interventricular septum at the base showed a terminal cyanosis coming on at the end of a long life, when bronchopneumonia or other cause had apparently raised the pressure in pulmonary circulation and reversed the current of blood so that it passed from right to left through the defect, producing an admixture of venous with arterial blood. In these cases of pulmonary stenosis with septal defect and *rechtslage* of the aorta, the cyanosis was deep but transient, appearing only during dyspnœic attacks and passing off entirely in the interval. Clubbing of

the extremities occurred chiefly in the groups of triloculate heart and of pulmonary stenosis, in both of which the duration of life of the patient is usually sufficiently long to permit of its development.

The evidence of cardiac defects given by *physical signs* is often conflicting. Only from the detailed study of the pathological findings in a given case, may complicating conditions be eliminated and conclusions be drawn. Such a study has been carried out in this chart and some surprising and most interesting facts are revealed which are at variance with the usually accepted ideas of the physical signs characteristic of these lesions. The presence of a thrill in defects of the interventricular septum, and in cases of pulmonary stenosis with, as well as in those without, associated septal defects, the occasional accentuation of the pulmonary second sound in pulmonary stenosis, the irregular localization of murmur or thrill over the apex rather than the base of the heart, the fact that the most complicated defects are sometimes latent, are negative points of importance, while others of true diagnostic value appear.

The *causes of death* are noted in the columns of the chart according as death is due to the lesion itself and is sudden or with failing compensation or is due to bronchopneumonia, cerebral disease, or the acute infectious fevers.

This chart, with a more detailed study of the physical signs, will be published in a later number of the JOURNAL.

The beautiful reproduction of the chart on this enlarged scale, which is demonstrated here, as well as much help in the calculation of the figures, I owe to the kindness of my friend, Miss Helen Reid.

THE CULTURAL FEATURES OF A NEW PATHOGENIC MICRO-ORGANISM OF THE CONJUNCTIVA.

BY

HANFORD MCKEE, B.A., M.D.

From time to time different forms of conjunctivitis have been shown to be due to specific micro-organisms, so that to-day we have several well known types. The micro-organism which I wish to bring to your notice this evening was obtained in pure culture in May last from a case of conjunctivitis, which seemed different from the known types. Having obtained the bacillus in pure culture, two normal conjunctival sacs were inoculated, a conjunctivitis in each case was set up and from the conjunctivitis the bacillus was obtained in pure culture. Upon that ground it seemed fair to presume that this bacillus was the patho-

genic factor in these cases of conjunctivitis, which number to date sixteen. The next point was to compare this with the known conjunctival micro-organisms.

Differentiation must depend upon cultural features, and the nearer two or more organisms resemble one another, the finer must the differentiation necessarily be.

This organism resembles two of the known conjunctival bacilli closely, namely, the Koch-Weeks bacillus, and the bacillus of Influenza. The time at my disposal will only allow me to describe the cultural features of this bacillus, which seem to me not clearly to differentiate it from these other two.

Clinically, the conjunctivitis was of the catarrhal form, with marked lacrymation. It was a palpebral conjunctivitis, the bulbar conjunctiva being quite uninvolved. There were no signs of influenza present in any of the cases.

The clinical picture differed widely from either the conjunctivitis set up by the Koch-Weeks bacillus or the bacillus Influenzæ.

Upon smear the bacillus is seen to be exceedingly small, short and thick, and hardly distinguishable from a coccus.

It stains easily with the aniline dyes, is decolourized by Gram's stain, and shows no polar staining.

The growth of the bacillus upon hæmoglobin agar is characteristic.

The initial tube generally shows numerous colonies of cocci or bacillus xerosis. Between these colonies we will see very fine pin point colourless dots. Upon hæmoglobin agar plates the bacillus is easily obtained in pure culture. After twenty-two to twenty-four hours in the incubator the slant of hæmoglobin agar will be seen covered with a mass of tiny colonies which are not separated. The growth is colourless and, as will be seen by examining the tubes, the colonies are no larger than the sharp end of a pin.

The surface of the agar has a blurred appearance, like a dull mist over it, and is at times so fine it is with the greatest difficulty seen. It is seen much better with artificial than with day light, especially with the proper reflexion of light. This fine mist-like appearance on hæmoglobin agar is the most constant and characteristic of its cultural features. It does not vary, no matter how much material is used in transferring, the growth is always the same. Upon hæmoglobin agar it grows well as a rule, but at times, for some unknown reason, it has been kept viable with difficulty. The media must be of certain reaction and two or three days old. A peculiarity that has been constant is the inability to cultivate it upon freshly prepared hæmoglobin agar. Draw-

ing a platinum loop along a growth and collecting some of it at the top of the tube will show a colourless mass. Drawing some of the bacillus Influenzae growth in a similar manner shows you a distinct white mass like a white coccus. Upon hæmoglobin agar, it is viable for a long time, and once was transferable after a period of two months; upon glycerine agar these same fine pin points will with difficulty be seen. Upon hydrocele agar the growth is similar, upon plain agar the growth has been inconstant. Upon blood serum, bouillon and the ordinary media, negative.

To tubes of litmus agar were added dextrose, dextrin, maltose, lactose, saccharose, galactose, inulin and mannit and a few drops of blood. The growth here was profuse, with no perceptible change in the reaction. To sugar-free bouillon were added the sugars as above and blood. Three tubes of each were taken, one being inoculated with this bacillus, one the bacillus Influenza, one used as a control. After twenty-four to forty-eight hours in the incubator frequent titration with phenolphthaleine gave the following results: The acidity of the tubes inoculated with this bacillus and the control tubes remained unchanged at 1 per cent., whilst in the tubes inoculated with the bacillus of Influenza the acidity changed from 1 per cent. to 2.5 and 2 per cent. After twenty-four hours in the incubator the blood would be seen settled to the bottom of the tubes. The fluid above showed a marked difference. In the tubes inoculated with this bacillus and in the control tubes the fluid was clear, while in the tubes inoculated with the bacillus Influenza a thick turbidity was seen. While fresh cultures of this organism are cultivated easily on glycerine and hydrocele agar, older cultures seem to lose that quality. It has from the beginning been kept in pure culture with the greatest ease. Upon identically the same media this organism would remain pure, while the bacillus Influenza would become contaminated. This has occurred not only once but many times, so that I believe this organism rather repels in some way the growth of contaminators.

Whether the form of conjunctivitis set up by this micro-organism is a mere local condition or not, I am not prepared to say.

Sixteen cases is not a large number, but it is larger than any other form seen here in that period, except Morax-Axenfeld conjunctivitis, which fact seems to me of some significance.

In all of the cultural features which I have described this organism is widely different from the Koch-Weeks bacillus. In the majority of the features which I have mentioned it is vastly different from the bacillus Influenza.

The cultural features on hæmoglobin agar alone are enough to satisfy the bacteriologist that this is a new conjunctival micro-organism.

A comparison of the reactions of this organism in sugar-free bouillon, and a study of its cultural peculiarities leave no room for the most skeptical.

OVARIAN DERMOID TUMOUR COMMUNICATING WITH THE RECTUM.

BY

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Ovarian dermoids are not rare. They are subject to a variety of accidents and complications. They are more liable to these than other ovarian tumours. In my experience the least common complication is that one of which a case is now to be described. The comparative rarity in recent years I attribute to earlier diagnosis and operation.

The patient, aged 31, has been married eight years and is the mother of two children, the first born four years ago and the last five months ago. This woman consulted me first seven years ago when,

At the operation done on 6th January, 1908, a proctoscopic examin- on examination, I discovered an ovarian tumour of the left side and advised its removal. I was not urgent and my advice was not heeded. She describes three attacks of abdominal pain from which she suffered in the summer of 1901. The attacks were of short duration, but left her with marked tenderness. About seven weeks previous to my seeing her this second time after the operation of a dose of salts, the patient was surprised to find a lock of hair protruding from the anus. Her medical attendant, Dr. Gow, of Calgary, was called and, with assistance and under chloroform, he removed the hair and diagnosed its source to be an ovarian dermoid tumour communicating with the rectum. Soon after she was brought to Montreal and placed under my care.

At the operation done on 6th January, 1908, a prostoscopic examination was first made, when a nipple-like body with a scanty covering of short hair was found projecting from the anterior wall into the lumen of the rectum, just above the so-called sphincter. Abdominal section revealed an enlargement of the left ovary of the size of a turkey's egg. It was in part intra-ligamentous and in part adherent to the rectum and adjacent peritoneum. It was composed in part of one relatively large loculus filled with bloody fluid and for the rest small cavities filled with sebaceous yellow matter with short flaxen-coloured hair. On separation of the adhesions the nipple-like body was revealed and an

opening in the rectum one inch in diameter was left. This was sutured in two layers with chromicized catgut.

It is worthy of note that the hair growing into the rectum was of the same dark red brown colour as that of the patient's head, while the scanty intraperitoneal hair was of the usual flaxen tint. Ovarian dermoids communicating with the rectum are not the only source of hair found growing into the viscus. Rectal dermoids and post-rectal dermoids are occasionally, but very rarely met with. Of the former, Bland Sutton in his work, "Tumours Innocent and Malignant," figures two examples, both copied from other authors.

Save for slight infection of the incision the patient is making a most satisfactory recovery.

UNILATERAL CONGENITAL ABSENCE OF THE PAIRED GENITO-URINARY ORGANS.

BY

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This specimen shows an abscess of the genital and urinary structures of the left side, in so far as those structures which are bilateral are concerned. The woman was forty-nine years old, and had borne one child and had one miscarriage. There was no kidney, ureter, renal artery, ovary, Fallopian tube or broad ligament on the left side, and the uterus consisted really of but half a uterus—the right half; the organ was finger-shaped, and pointed to the right at about an angle of 30 degrees from the sagittal plane, which is the usual position and appearance of a uterus which has but one cornu. The vagina and urethra were apparently normal; the bladder was median and showed no sign of left ureteral opening. The right kidney was a little larger than usual and was in the normal position. The body of the uterus measured 6.5x2x2 cm. The right ovary was very small and wrinkled, but the right tube appeared normal.

The anomaly has arisen from the fact that on this side there has been no Wolffian body or duct formed, nor any Müllerian duct, and the entire series of structures which arise from them, kidney, ureter, ovary, parovarium, tube and uterine cornu, is missing.

I cannot find how uncommon this combination is; the absence of each one of the structures concerned is noted in nearly all works, and unilateral absence of the genital organs is commented upon; the only case at all parallel that I have found is in the Transactions of the Pathological Society, 1883-4, where Mr. Carrington recorded a case somewhat similar, in which the same abnormality of the genital organs was accompanied by a misplaced left kidney.

BILHARZIOSIS.

BY

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It is not my intention, nor is this the place to go into the question of bilharziosis in North America, and more particularly, in Canada; it may, however, be well in passing to remind you that in the MONTREAL MEDICAL JOURNAL, of September, 1906, Doctors Ross and Delaney, of the Jeffrey Hale Hospital, Quebec, reported two cases of bilharzia of the bladder, who were both newly returned South African soldiers. Doctor Ross remarks that more cases would likely follow, and the case which I have to bring before you to-night is just such an one. These were the first cases reported in Canada; the present is the second.

The patient, æt. 25 (service of Dr. Lafleur), October 19th, 1907, served in the late South African war, spending from January, 1900, till September, 1902, somewhat over two years, in South Africa. In June, 1901, he developed a urethral discharge which lasted three months and disappeared. In December, 1902, a second discharge lasted six months, at the end of which period (July, 1903) he noticed a drop of blood at the end of micturition. This has continued fairly constantly up to the present, sometimes instead of blood a small coagulum would be seen, rarely he would see nothing. The only additional signs of disease were frequency of micturition and occasional blood streaks in his stools. He has not lost weight.

Examination showed a fairly nourished young adult. Physical examination was negative. A cystoscopic examination showed a small blood clot lying in the base of the bladder and on the fundus 2 inches posterior to the trigone a slightly raised, irregular brown patch, ¾ in. in diameter with occasional dark red spots (hæmorrhagic) and studded over by numerous pin points and pin head pustules like miliary tubercles, but more yellow. These extended over the patch and on to the surrounding wall for a distance of ½ to 1 inch. A similar but smaller patch was present in the right wall. No blood vessels are visible through these patches and actual ulceration is confined to the small, dark spots over the patches. Two small filamentous areas with similar pustules were also present, and here and there other pustules with or without slight discolouration of the mucous membrane. Between the affected areas the mucous membrane appears perfectly normal.

The urine, by catheter (after washing the urethra), is acid, turbid, shows a trace of albumen after filtering, and contains pus cells, red blood cells, and the ova of the Schistosoma hæmatobium first described

by Bilharz, in 1852, as the cause of Egyptian hæmaturia. An eosinophilia of 10 per cent. was found.

On subsequent examinations the eggs could always be demonstrated, always with the terminal spine. Up to the present no ova have been demonstrated in the stools.

MEDIASTINAL SARCOMA WITH EXTENSIVE INVOLVEMENT OF THE HEART.

BY

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This specimen is presented not because of its infrequency, for, indeed, sarcoma of the heart is now recognized as, probably, the most common of all tumours in this organ. Formerly, cancers were thought to be the most common malignant growth in the heart, but this opinion was based upon a faulty terminology. There are, however, special points of interest, both to the pathologist and physiologist, which make this specimen of more than considerable interest. Those who have seen the specimen will have noted the extensive growth evidently arising from the loose connective tissue about the roots of the lungs, the thickening of the pericardium, and the fact that the sarcomatous growth not only totally surrounded the heart, but invaded its muscles, its valves, its septa, and formed numerous nodules within the heart cavities themselves.

The patient was a clerk, aged twenty-three, whom I first saw in July, on account of supposed pulmonary tuberculosis, for which he had been sent to the mountains some weeks previously. The onset of his trouble had been manifested by sudden faintings, some dyspnœa, cough and expectoration. These symptoms, which led to the diagnosis of tuberculosis, had been rendered more suggestive by some dulness which had been found in the second right intercostal space one inch to the right of the sternum. The sputum, however, had failed to demonstrate the presence of tubercle bacilli. When I first saw him in July, the main features were his excellent nutrition, the slight dyspnœa and an irritative cough. His chest showed some cyanosis with dilated superficial veins. There was no bulging or pulsation of the chest at this time, but percussion showed a marked increase of precordial area to the left and right,—the dulness to the right being continuous with the heart dulness and extending more than one inch to the right of the sternal border in the second and third interspaces. The apex beat was in the fifth space, three-quarters of an inch outside the nipple line. Careful

examination at this time showed no sign of cardiac or pulmonary disease and the larynx did not seem to be abnormally fixed. A fluoroscopic examination confirmed the physical examination and though the mass was pulsating, other signs excluded the probability of an aneurysm. The diagnosis was that of mediastinal pericarditis or, possibly, a neoplasm of the mediastinum.

The patient returned to his home for several months, and, while under medical supervision, preserved comparatively good health. On his return in October, however, he presented marked signs of progressive development of the condition with signs of intra-thoracic pressure. There was œdema of the face, right hand and also of the lower thorax, the left arm, the scrotum and the feet. There was slight pleural effusion on the right side and the liver could be felt two inches below the costal margin. By this time, too, a much wider area of thoracic dulness was manifested and the shadow seen by fluoroscopic examination was much more extensive. The neoplasm, for evidently this was the obvious condition, had extended upwards to the right and to the left, as well as downwards, as the accompanying skiagraph will indicate. The movement of the diaphragm could not, at the time, be discerned, probably owing to the presence of the fluid in the chest. There was probable thrombosis of the subclavian vein in the right side. In spite of the extent of the growth there was no involvement of the sympathetic recurrent laryngeal nerve or trachea, the œsophagus, too, was free, as is often the case, being better protected by its position.

Dr. Birkett's examination of the larynx revealed some thickening of the cords but no paralysis. The course of the disease was progressively downwards, but it is noteworthy that up to the time of his death the pulse remained persistently regular in volume and rhythm. His death was sudden, while moving from his bed to a chair. The autopsy revealed a mediastinal sarcoma arising not from the glands, but from the loose connective tissue and involved the heart, pericardium, pleura, lungs, diaphragm and extended by contiguity to the liver and there was evidence of visceral metastasis by blood stream. Note the extensive invasion of the valves, of the auricular and ventricular septa, of the muscles of both ventricles, as well as the external surface.

Much interest centres about that region containing the bundle of His. These bundles, which are presumed to regulate the rhythm of the heart, would seem to have almost entirely been replaced by new growth and certainly to have been interrupted in their course. One would, therefore, have anticipated at all events, disturbance in rhythm and some irregularity. The work of Fahr, Gibson and others, demon-

strating microscopic lesions of these bundles, may be compared with interest to the extensive lesions which here exist in the absence of either heart block or any mild disturbance of rhythm.

The interesting features are briefly these:—

1st. The similarity of the signs with tuberculosis, and the aid of the fluoroscope in determining the diagnosis.

2nd. The pulsation of the mediastinal tumor, as seen by the X-Rays, in conditions other than aneurysm.

3rd. The regularity of the pulse throughout the disease in spite of the heart being completely surrounded by tumour, in spite of involvement of the coronary arteries, and in spite of the apparent obliteration of the bundles of His.

"BLUE BABY," 17 YEARS OLD.

BY

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The patient is a male, aged 17, employed as clerk. He complains of shortness of breath and weakness. The family and personal history is good. Patient is 5 feet 5 inches, weighs 115 pounds; subcutaneous fat is small in amount and muscles poorly developed. There is general cyanosis, especially of extremities and mucous membranes; the skin is cold; temperature 99, pulse 72, respirations 21. Fingers and toes are clubbed, lips thickened, also nose and ears. Slight kyphosis, prominent first rib, slight emphysema. Digestion good, teeth poor, buccal and pharyngeal mucous membranes greatly congested; tongue flat, broad and covered with fissures. Intraocular congestion of vessels of fundus of eye. Present illness dates from birth.

Cardio-vascular system:—Dyspnœa constant, increased on exertion and accompanied by dizziness, weakness, palpitation, faintness, and occasionally "giving" of the knees. There is slight prominence of precordial area with diffuse pulsation as also over epigastric area, systolic in time. Apex beat visible in 4th and 5th spaces in nipple line. There is, in addition, a systolic thrill in the 3rd left interspace a short distance from the sternum, also a systolic shock at the right lateral sternal line. Pulse regular, tension low, almost dicrotic.

Percussion shows absolute dulness along 4th left cartilage to nipple and from here down a vertical line to apex, *i.e.*, distinct increase of absolute dulness. Relative dulness ½ inch to left of this and upwards to 2nd space. Right border of cardiac dulness normal, perhaps there is increase which is hidden by emphysema.

On auscultation is a systolic murmur somewhat harsh in character, maximum intensity at apex, well heard towards end of sternum and propagated to axilla. A systolic murmur is heard, harsh, loud, swishing with a maximum intensity in 3rd left space transmitted down left border of sternum. The first sound is obscured at apex and replaced at pulmonary orifice by the respective systolic murmurs. 2nd sound is diminished at pulmonary and increased at apex. 1st and 2nd aortic sounds rather diminished. Systolic murmurs at aortic and tricuspid areas, faint and probably transmitted there.

Diagnosis (Differential):—Not patent foramen ovale because of marked cyanosis, absence of diastolic and pre-systolic murmurs and of venous pulsation, in spite of the acquired mitral regurgitation (probably present). Not defect of the interventicular septum because murmurs not transmitted to interscapular region and there is a marked thrill present. Not stenosis of the aorta because condition very uncommon compared to pulmonary stenosis and most forms of former lesion are incompatible with long extrauterine life. Symptoms of this condition in later life when accompanied with acquired mitral regurgitation, are (1) Marked hypertrophy of the left heart, (2) cyanosis usually absent, (3) loud systolic murmur and thrill over manubrium sterni, conducted into vessels of neck, (4) visible collateral circulation of arteries over chest and abdomen, (5) sometimes retardation of femoral pulse and marked weakness of pulse over lower half of body.

The condition which would best account for the symptoms present is Patent Ductus Arteriosus, the symptoms of which are: a loud systolic bruit in the 2nd or 3rd left intercostal space a short distance from the sternum, which is accompanied by a palpable thrill and an accentuated second sound. Occasionally there is a diastolic murmur. The left ventricle is usually hypertrophied. The faintness of the 2nd pulmonic sound may be accounted for, perhaps, by some stenosis in the pulmonary artery which is a frequent accompaniment of patent ductus. Finally, it does not seem illogical that the patient may have an acquired mitral regurgitation as indicated by the hypertrophied left ventricle, the systolic murmur, best heard at the apex and transmitted to the axilla, and by the fact that the 2nd pulmonic sound is at all present in spite of the pulmonary stenosis assumed.

Prognosis:—"The prognosis in uncomplicated cases of patent ductus arteriosus is more favourable than in most forms of congenital heart disease. About half of the published cases have survived puberty, and many have had long and active lives without any signs of disease." In this case, however, the lesion is apparently not uncomplicated and the

facts that the heart is distinctly enlarged, and has enlarged during the past two years, that the cyanosis is often intense, the clubbing marked and becoming more so, and finally that disturbance of compensation more readily follows exertion than in the past, lend a somewhat sinister aspect to the prognosis.

Treatment:—The treatment here, as in similar cases, may be summed up in "rest and warmth." Failure of compensation would be treated as in the acquired cases.

TUBERCULOMA OF THE TONGUE.

BY

E. M. VON EBERTS, M.D.

The specimen presented is one of tuberculoma of the tongue. It was an intra-lingual tumour beginning in this case as a deep-seated induration in the anterior third of the organ, and, until incised, retaining a covering of normal epithelium.

The term "Tuberculoma" was first employed by Poncet to distinguish this form of tuberculous glossitis from the commoner clinical type where superficial ulceration is usually the first condition noted.

Tuberculous disease of the tongue was first recognized and described by Sir James Paget, in 1858, and the rarity of the affection is attested by the infrequency with which such cases are noted in the statistics of even the large metropolitan clinics. And among these cases few conform to the type of that presented.

Tuberculosis of the tongue is practically always secondary to tuberculous disease elsewhere in the organism—usually pulmonary—and with rare exceptions first manifests itself as a superficial ulcerative process involving the tip or margin of the organ. Males are the more frequently attacked—in the proportion of four to one.

The clinical history of the case presented is briefly as follows:—

The patient, a female, æt. twenty-five, applied to the surgical side of the Out-Patient Department of the Montreal General Hospital on October 13th, 1907, complaining of a sore tongue and swelling of the glands of the neck. Examination showed the presence of a small indurated mass immediately to the right of the median line of the tongue one inch from the tip and without involvement of the epithelium; also numerous enlarged lymph nodes in both sub-maxillary spaces; those on the right side being tender. An examination of the chest revealed an extensive left sided chronic phthisis. The sputum contained a few tubercle bacilli. The nodule on the tongue gradually increased in size, and on November the 4th excision was attempted by longitudinal incision. Three days later the stitches were removed, and healing was apparently complete, al-

though there remained a deep-seated induration towards the median line. On November 28th the superficial epithelium became involved with subsequent formation of a crater-like ulcer; at the same time pain—previously an unimportant feature—became most pronounced, and the patient showed a rapid failure of nutrition. One week later the anterior third of the right half of the tongue was excised.

There has been no recurrence of the disease.

The prognosis of tuberculous ulcer of the tongue is, according to Mr. Butlin, almost as unhappy as that of carcinoma. "Not only is the disease fatal, but it is usually fatal within a few months, or from one to two years."

The diagnosis in this case was confirmed by the microscopical findings, and tubercle bacilli were isolated in pure culture upon a modified Dorset medium from an excised lymph node. The preparations from the lesion as well as a recent transplant from the original growth are shown herewith.

HYPOPION IRITIS, ASSOCIATED WITH EPIDEMIC CEREBRO-SPINAL MENINGITIS.

BY

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In a recent contribution on the ocular manifestations of cerebro-spinal meningitis Ballantyne (1) has shown that the occurrence of these manifestations are much more frequently the rule than the exception. Although the writer claims that in only four cases for a total of seventy-three examined were ocular disturbances absent, yet he states quite emphatically that in no instance was the iris or uveal tract involved. Oeller (2), on the other hand, says that cyclitis does occur in cases of perineuritis which have originated from meningitis.

The condition is at least a rare one, and the present case should be of interest, not so much from a clinical standpoint as on account of the special bacteriological and pathological observations which have been made and which render the report more valuable.

C. W., an infant of two years, of foreign parentage, was admitted to the medical service of the Royal Victoria Hospital on April 4th, 1907, its mother stating that it had appeared feverish and chilly. It had recently arrived from Europe and for three days prior to its coming to Montreal it had resided in New York. The voyage across the Atlan-

(1) British Medical Journal, 1907, II, page 190.
(2) Archiv. f. Augenkrank, Vol. VIII, pege 357.

tic had been uneventful, the child appearing in its usual good health and taking its food with apparent relish. The mother stated that shortly after her arrival in Canada the child was feverish and at times chilly and fretful. The personal and family history of the patient threw no light upon the diagnosis.

On examination a purpuric rash was seen to be distributed over the body, the child was restless and fretful, and the respirations were rapid. The child was fairly well developed, although there were definite manifestation of rickets present, as beading of the ribs, enlargement of the wrist and ankle joints, and bowing of the legs. Some indefinite impairment of the resonance was noted at the apex of the left lung anteriorly, and the glands were enlarged in the inguinal, maxillary and cervical regions. The heart sounds were rapid but fairly clear, the pulse was very small, running 140 to 160 per minute. A leucocyte count showed 41,600 per cm. The tongue was coated and dry, T. 101.4. The purpuric patches previously referred to were somewhat irregular in shape and distribution, some being half an inch in diameter, others existing as mere spots. They were more numerous on the legs than on the arms, and on the arms than on the body. There seemed to be a definite tenderness present, the child strenuously objecting to being handled. It showed evidence of being able to speak and to hear and sensation appeared normal.

Two days later the child was quieter, but the respirations were somewhat more rapid, the purpura more extensive, and a diffuse erythema had covered the body for about two hours. The blood on examination showed a preponderance of polymorphonuclear cells.

On April 7th the pulse was more rapid and weaker; T. 103; there was little change in the condition of the lungs, but a distinct swelling of the right parotid gland was noted to-day for the first time; the purpura was more marked. A blood culture previously taken was negative.

On April 9th there was noted a marked condition of suppurative as at last note, both parotid glands were swollen, the pulse was very weak, and blowing breathing could be heard at the apex of the left lung posteriorly. The purpura was most extensive; a lymphocyte count showed 11,600. A lumbar puncture was made and one ounce of turbid fluid was withdrawn. Microscopically this showed numerous pus cells but no micro-organisms could be detected. An infiltration of some of the superficial epithelial cells of the left cornea was first noted to-day, the fibres of the iris were somewhat swollen but an indistinct view of the eye grounds could be obtained. There was no per-

ceptible change in the condition of the optic disc in this eye, and that belonging to the right eye was quite normal.

On April 9th there was noted a marked condition of suppurative iridocyclitis. The iris was discoloured a greenish yellow, did not react to light and the pupillary area and the anterior surface of the eye were covered by a plastic exudate of lymph. The lower angle of the anterior chamber was filled with bright yellow pus. The fundus of the right eye was normal. Cultural growths of the cerebro-spinal fluid made by Dr. Oskar Klotz gave positive results for the meningococcus of Weichselbaum. The neck became more rigid, there was no apparent paralysis of the extrinsic muscles of the eye, and exitus occurred that evening.

A post mortem examination was made the following day when the eye was removed. The pathological diagnosis supported in the main the clinical observations which had previously been made; an acute purulent pericarditis occurring with the meningitis as well as the iridocyclitis was particularly interesting. Sections of the eye were made in celloidin varying from 20 to 25 mm. in thickness. The stains employed have been hæmatoxylin and eosin.

The macroscopic findings were those of a normal globe, except that the anterior chamber appeared to be occupied by a large quantity of exudate. The suspensory ligament of the lens also appeared to be the focus of considerable inflammatory reaction standing out in much bolder relief than is usually the case. The several coats of the eye were in close apposition to one another and the vitreous cavity appeared clear. (Fig. 1.)

The microscopical findings are as follows:—

The superficial corneal epithelium is intact at both limbi and consists of the normal number of layers of cells; but as one proceeds inwards these layers become perceptibly fewer in number, in some places consisting only of one or two layers instead of several; in fact, at one or two points complete exfoliation of the epithelial layer has occurred. The cells, however, are all quite clear with deep nuclear staining and the underlying hyaline membrane of Bowman is not shrunken or ruptured.

The underlying corneal tissue proper can hardly be said to show what one would understand as a definite infiltration, although one can make out several leucocytes scattered about through the tissue; these are mainly of the small mononuclear and polymorphonuclear variety. There is no contortion of the corneal cells. Descemet's membrane is intact, the nuclei staining unusually distinctly. Schlemm's canal is not

occluded at either angle, nor is there any change in the lumen or about the walls of the vessels at the corneo-scleral margin. The sclerotic shows little or no pathological change beyond a few isolated lymphocytes which are scattered throughout its fibres.

The retina shows a slight infiltration of its several layers of lymphocytes and some polymorphonuclears; but these cells are much more abundant in the layer of rods and cones and in the ganglion cell layer. Some of the retinal vessels have been cut transversely and their lumen is occupied with red blood corpuscles, a very decided infiltration of the vessel walls being noticeable in more than one instance. There is, however, no evidence of distinct engorgement. The cells about the walls of the blood vessels are mainly of the lymphocyte class. At the ora serrata this infiltration of the retina becomes much more pronounced, and in the pars ciliaris retinæ extending from the ora serrata to the ciliary body, the infiltration is so intense that the several layers of the retina can be detected with the greatest difficulty. At this point an enormous quantity of leucocytes has been thrown into the vitreous cavity which, with some organized connective tissue elements follows the course of the retina up to the ciliary body.

The choroid is practically normal; the pigment as well as that belonging to the retina is intact, the vessel walls are normal and some of them are filled with a few isolated red blood corpuscles. They are by no means engorged. There is not the slightest indication at any point of perivasculitis, as I have already pointed out to have been the case, about the retinal vessels. The optic nerve can hardly be said to be swollen, bearing out Gower's (3) reference to Schirmer's examination of twenty-seven cases where no apparent swelling could be detected clinically. There does, however, appear to be a slight infiltration about the walls of the central vessels of the optic nerve. Some sections show an organized clot consisting of newly formed connective tissue elements, some leucocytes and red blood corpuscles. I have considered this as a post mortem change, as there is no indication of a generalized marked engorgement of the retinal veins which would have resulted had a clot occurred in the central artery of the nerve during life.

The dural coat of the optic nerve sheath is normal, but the arachnoid consists practically of an infiltrated mass of lymphocytes and is firmly bound down to the pial sheath and the nerve trunk. The space existing between the dural and arachnoid sheaths is practically clear, the exudate appearing to settle in the arachnoid coat itself as its seat of predilection.

(3) Medical Ophthalmoscopy, 1904, page 169.

The ciliary body is tremendously infiltrated with blood corpuscles, mainly of the small mononuclear and polymorphonuclear variety; these with the pigment which is scattered throughout this structure practically prohibits a clear view of the ciliary muscle. The ciliary body, like the pars ciliaris retinæ, has thrown an enormous quantity of these lymphocytes into the vitreous cavity which, following the course of the suspensory ligament include the posterior capsule of the lens behind and the iris in front.

The lens is practically normal; some of its anterior fibres have been torn in cutting the sections.

The iris is practically a repetition of the condition noted in the ciliary body, but the degree noted here is even more intense. It is tremendously infiltrated throughout its whole structure, its fibres are swollen and contorted, and the spaces between these are occupied by a marked engorgement of leucocytes, and a number of erythrocytes. Inflammatory changes can be noted in the posterior pigmentary layer, several pigment cells having become detached from adhesion to the anterior lens capsule as posterior synechiæ. The anterior pigmentary layer can be seen to be broken at numbers of points where quantities of lymphocytes are pouring into the anterior chamber (Fig. 2). The condition of the vessel walls here is distinctly interesting, some of these capillaries are contorted and show a distinct swelling of their endothelial cells, numbers of which can be seen lying free in the lumen of the vessels. Again, one can make out occasionally a lymphocyte or polymorph in the blood stream, some adherent to the vessel walls and others evidently migrating through the wall of the capillary (Fig. 3). The capillaries of the iris are not engorged, although some of them contain a few blood corpuscles. Some pigment cells can also be seen scattered about the neighbourhood of the vessel walls and the connective tissue about these shows a decided degree of inflammation. In the anterior chamber the inferior filtration angle is completely occluded by a purulent exudate which consists practically of a mass of polymorphs, lymphocytes and large mononuclear leucocytes, the polymorphs being by far the most numerous. A second mass of purulent clot follows this in a wedge shape, apex down, extending upwards as a ribbon-like band and covering the pupillary area. Organized connective tissue formation bounds the anterior part of this band, a second band of exudate extending over the whole of the anterior surface of the iris on one side to which it is firmly adherent and over one-third of the iris on the opposite side (see Fig. 2). A quantity of this exudate has been deposited on the posterior surface of Descemet's membrane, a comparatively small

portion of this part of the cornea being discernible that has not a number of these lymphocytes in apposition to it.

Staining for Gram-negative micro-organisms in the tissues is naturally unsatisfactory, more particularly when formalin has been employed in preparing the sections, and positive results were hardly anticipated. I have stained some sections with carbol thionin and have found organisms in the exudate about Descemet's membrane and in the iris tissue, both intra and extra cellular, which might be taken for Weichselbaum's diplococcus. Their size was about what one might expect, but their shape and capsule were somewhat vague. They were scanty, although several could be distinguished with the aid of an oil immersion magnification. However, in the space between the arachnoid and the dural sheath of the optic nerve trunk, micro-organisms of a much more definite character were detected. These were of the usual diploid form, such as one finds in Weichselbaum's biscuit-shaped coccus, and were surrounded by a clear space very much the same as that found between the organism proper and its containing capsule.

In reviewing the literature on this subject one is struck with the paucity of cases which have been subjected to pathological study. Treacher Collins (4), and more recently, Sydney Stevenson (5), have reported cases, but as Axenfeld (6) very justly remarks, their investigations and subsequent conclusions can hardly be said to be complete, not having been able to exclude other forms of infection. Axenfeld had the same criticism to offer regarding the cases of Saltini and Silcock (7).

A similar verdict may possibly be awaiting the present report; in its defence I may state that I consider the condition a metastatic form of inflammation, contending that the changes in the vessel walls of the iris and the migratory tendency of the leucocytes within the vessels support this theory. The fact that bodies were found in the tissues somewhat resembling the meningo-coccus and most closely resembling it in the arachnoid sheath of the optic nerve is a very strong point in my favour. That Dr. Klotz was able to isolate the meningo-coccus from the cerebro-spinal fluid during life added to the other features which I have presented above, should be sufficient evidence in substantiating my contention that my case has been one of acute purulent iridocyclitis of metastatic origin due to the diplococcus intracellularis meningitidis.

(4) Royal London Ophthalmic Reports, Vol. XIII, Part 3.

(5) Transactions of Ophthal. Society of the United Kingdom, Vol. XX, p. 121.

(6) Bakteriologie in der Augenheilkunde, 1907, S. 335.

(7) Transactions of Ophthal. Society of the United Kingdom, Vol. XX, p. 112.

In conclusion, I wish to express my thanks to Dr. Hamilton for his kind permission to examine the patient clinically, to Dr. Oskar Klotz for his report on the bacteriological findings of the cerebro-spinal fluid, and to Dr. Adami for allowing me to remove the eye for pathological study.

VINCENT'S ANGINA.

BY

A. H. GORDON, M.D.

The following case is interesting as a condition not frequently noted in Canada and comparatively rare in English medical literature.

On October 27th, 1907, Mr. E., 20 years of age, a medical student, consulted me for slight soreness in his throat. He stated that two weeks previously his throat had been sore for a few days, but the soreness had passed away and he was quite well until October 24th, when it again troubled him somewhat. The throat was only slightly painful. Swallowing was but a little uncomfortable; constitutional symptoms were practically absent. The temperature was 99, the pulse 80.

On examination of the throat, there was little injection. but upon the right tonsil there was seen an ulcerated patch 1 in. vertically and ½ in. horizontally, occupying almost the whole tonsillar surface. The edges of the patch were raised and irregular, the base of a dirty greyish colour having the appearance of a slough with here and there a small island of granulation tissue appearing. There was distinct loss of substance, the whole picture being one of ulceration rather than membrane formation.

A similar patch but only half the size, was seen upon the left tonsil. At no place did the process spread beyond the limits of the tonsils.

Rubbing the base of the patch with a swab readily brought blood, but left the exudate still adherent. The odour from the swab was distinctly fœtid.

The submaxillary glands though palpable were but slightly tender. There was no history of syphilis nor was there any trace of the disease elsewhere in the body.

A culture made for the diphtheria bacillus and examined by Dr. Lyman was found negative. As the condition remained stationary, another culture was taken on November 31st, which was also negative, but direct examination of smears showed two distinct types of organism:

1. A spirillum or spirochæta, extremely slender and showing 2 to 4 waves, in length very much greater than breadth.

2. A bacillus, club-shaped, swollen at centre and with pointed ends staining well with Lœffler's blue and white Wright's stain; appearing singly, showing some of the polar staining characteristic of the Klebs-Lœffler bacillus.

Under application of peroxide of hydrogen and cleansing gargles the condition finally cleared up in about 10 days, leaving behind, however, marks of a loss of substance in the tonsil.

Both clinically and bacteriologically, this angina corresponds accurately with those cases described by Vincent in the Annales de l'Institut Pasteur in 1896, and at intervals since then noted by other observers. Fisher in the American Journal of Medical Sciences gives a description of the organisms as follows. The spirochæta and fusiform bacillus appear in combination. The bacillus is swollen at the centre and shows pointed ends, is 6 to 12 in. long, may appear as a diplobacillus, is sometimes curved and bent, and usually but not invariably decolourized by Gram's method. The spirillum is 21-40 in. long, invariably decolourized by Gram. Both organisms show mobility and in both cultures so far are negative. Mayer in the same Journal for 1902, emphasizes the subacute character of the condition, its comparatively painless character and its resemblance to chancroid. Blackwood in American Medicine for March 1907, cites nine cases occurring upon lips, tongue, gums, cheeks tonsils and pharynx, and in all of his cases there was no glandular enlargement.

I am indebted to Dr. Birkett for a suggestion as to the nature of the condition and to Dr. Lyman for examining cultures for me.

TWO INTERESTING CASES.

BY

E. J. Williams, M.D.,
Sherbrooke.

I. Perforation of gall bladder from erosion by calculus.

II. The appendix in the inguinal canal and scrotum.

During the past few months I have had the opportunity of witnessing two rather interesting cases. On June 20th I was called in consultation with Dr. B. N. Wales, of Bury. The patient, a man forty-six years of age, had been confined to bed for six days. The previous history had pointed strongly to gall stones and he had been treated for such up to the time I saw the patient.

There had been present sharp paroxysmal pains over the gall bladder radiating toward the stomach and upwards toward the right shoulder.

The patient was slightly jaundiced. On examination there was present well marked distension of the abdomen with dulness in the right flank, extending well forward toward the umbilicus and downward to the right inguinal region.

On turning the patient on his left side this dull area was not changed in any way. Rectal examination revealed a fluctuating mass in the pelvis. The patient was vomiting every one to two hours, pulse 120, mouth temperature 98 4-5, rectal temperature 101, facial aspect slightly anxious, more or less tenderness over the whole right side of the abdomen, very little over the left, very marked in the right iliac region, and the right rectus was very rigid. From the symptoms present at the time of my examination I diagnosed acute appendicitis with perforation, with extension of pus upwards to the liver and downward into the pelvis.

The patient was removed to the hospital, and I opened the abdomen, making an incision three inches long, two inches of which was above the line running from the umbilicus to the anterior superior spine. On opening the peritoneum a large quantity of the bile stained fluid poured out. Turning the patient on the side the remainder of this fluid was evacuated, the whole amounting to about one quart. The gall bladder was first examined carefully, and there was found a stone measuring 1 cm. by 1½ cm., firmly imbedded in the first portion of the cystic duct; the gall bladder seemed intact. Extending the incision downward toward the appendix, this organ was examined and found to be intensely congested. Having removed the appendix, I opened the gall bladder and removed the stone. On exploring the inner surface of the gall bladder with a large probe for perforation, I found an opening in the most dependent part of the wall about the size of a pea. There was marked erosion of the mucous membrane about the opening. The gall bladder was removed and a gauze drainage was placed down to the stump of the cystic duct and a rubber tube drainage carried down into the pelvis. The abdomen was closed between these two points. The patient made an uneventful recovery.

Case II.—On July 21st, I was called in consultation with Dr. Alex. McDonald, of Bury. The patient, a young man of eighteen years of age, had complained for several years of pain in the right inquinal region, also slight pain and swelling in the left inguinal region.

The protrusion was the size of an English walnut. On the day previous to my visit, while lifting a heavy log of wood, he said he felt something give way in the right side and immediately a lump appeared. This was followed by vomiting and very severe pain. The case was

diagnosed as one of Strangulated Hernia, and immediate operation advised, as it was impossible to reduce the mass by taxis.

On examining the patient I found a mass over the left inguinal canal measuring 6 cm. by 4 cm. This mass was firm and pressure over the same caused excruciating pain. In the left inguinal region, a small hernia (reducible) was present. On opening the inguinal canal on the right side, the mass was found to be a portion of the omentum; it was drawn well out of the abdomen, ligated, and excised. I then proceeded to do a radical operation for hernia and found considerable difficulty in isolating the cord from the surrounding structures. After an extensive dissection, I separated from the cord a long appendix which extended down into the scrotum to the epididymis. On extending the incision well up into the abdomen I found the cæcum bound down to the abdominal wall about the internal ring. As this attachment was very firm I made no attempt to break up the cohesions, but simply excised the appendix, inverted the stump and closed with a purse string suture. I completed the operation by doing a Ferguson operation for radical cure. The condition suggested to my mind the possibility of the appendix being dragged down into the scrotum with the testicle at the time of its descent from the abdominal cavity. Dr. McDonald continued with the case doing Bassini's operation on the left side. The patient made an uneventful recovery.

COMPLETE OCCLUSION OF BOTH ANTERIOR NARES.

BY

R. H. CRAIG, M.D.

The patient was a female, aged two years and eight months, brought to me by her mother in November, 1906, who stated that her child had been unable to breathe through her nose for the past two years.

When the baby was three months old the mother first noticed that she breathed with difficulty through her nose. A local physician was consulted and attempted unsuccessfully to pass a small catheter through the baby's nostrils. According to the mother's statement, the baby could breathe freely through her nose when born.

There was no evidence of rickets or inherited syphilis. The organs, so far as could be ascertained, were normal. Examination showed a small child anæmic and of marked nervous temperament, mouth open and facial expression presented all the characteristics of a mouth breather. The nasal bones were almost on a level with the face and presented a pronounced saddle backed appearance even for a child so

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young. Both anterior nares were covered by epidermis, the same color as the surrounding skin, which had apparently grown from the muco-cutaneous junction of the nares. The post-nasal space and pharynx were free.

I advised operation, the mother readily consented. Patient was anæsthetized, an incision was made through the centre of each plate of skin and both inferior turbinals were found in contact with the septum, but not adherent. I enlarged the space between the septum and inferior turbinals with nasal forceps and introduced two small silk rubber drainage tubes. The after treatment was nothing worthy of note and consisted in changing the tubes at stated intervals for cleansing purposes. The tubes were permanently discarded six months after the operation.

The result has been gratifying, the child breathes freely through both nostrils and since the establishment of nasal respiration its appearance and general health have greatly improved.

A considerable number of cases of occlusion of the posterior nares have been recorded, but from a cursory review of the literature I have failed to note a case similar to mine. Although the mother stated the child could breathe freely through its nose when born, I am inclined to doubt her statement and regard the condition as congenital. One must not forget, however, the possibility of the stenoses being caused by traumatism, possibly caused by the physician who attempted unsuccessfully to pass a catheter into both anterior nares.

A brief reference to the embryology of the formation of the nose may prove interesting at this point. Heisler states the external nose first acquires definite form about the eighth week by the union of the distal ends of the lateral nasal processes with the naso-frontal process; the former preceding the alæ and the latter the bridge and tip of the nose. In the third month the organ is unduly flat and broad but from this time on it gradually assumes its characteristic form. From the third month to the fifth each external naris is closed by a gelatinous plug of epithelial cells. Therefore, I am disposed to conclude, that in this case the patency of the external nares was not established even at birth.

ROYAL VICTORIA HOSPITAL.

Monthly report for February: Patients admitted, 297; patients discharged, 273; patients died, 20. Medical, 84; surgical, 125; ophthalmological, 17; gynæcological, 37; laryngological, 34. Out-door Department—Medical, 732; surgical, 682; eye and ear, 257; diseases of women, 116; nose and throat, 408; total, 2,196. Number of ambulance calls, 93.

SOME MODIFICATIONS OF THE TREATMENT OF CYSTITIS IN WOMEN, WITH REPORT OF 45 CASES STUDIED CYSTOSCOPICALLY.

BY

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The modern treatment of cystitis is the product of recent years and its development has depended upon the improvement in the structure of the cystoscope and the increase in skill and knowledge of its use. Before the interior of the bladder could be inspected and the pathological lesion observed, treatment of such conditions had to be, of necessity, empirical and indefinite. But, with modern methods of diagnosis, direct inspection of the site of inflammation and visual knowledge of the effects of treatment, it is possible to control and to cure affections of the bladder in a direct and efficient manner.

The ease with which the bladder may be inspected and the small amount of harm and discomfort of the cystoscopic examination in skilled hands are potent factors in the diagnosis, treatment and cure of cystitis in women. It is thus possible to make an exact diagnosis of the bladder lesion, and appropriate treatment may be directed towards it.

If, however, no cystoscopic examination is made in cases of cystitis, it is impossible to localize the site of inflammation, acquire any knowledge of its size and location, or eliminate grave and dangerous affections of the kidney and adjacent organs. Many bladder and kidney lesions may produce mild symptoms, yet be of such a momentous character as to make their early diagnosis a necessity for the welfare of the patient.

It is possible with the cystoscope to detect the presence of inflammation by the appearance of the bladder; ulcers and tumours of the bladder wall are readily seen and treated. The source of blood in the urine, that most important symptom in genito-urinary conditions, may be definitely located and appropriately treated. An intelligent prognosis cannot be reached without a definite diagnosis of the bladder and kidney condition, and this cannot be done without visual inspection of the bladder wall and the ureteral orifices; it is often necessary in addition to catheterize the ureters and obtain urine from each kidney for examination. None of the newer methods of urine examination, as cryoscopy, estimation of functional capacity of the kidney by methy-

lene blue, etc., can take the place of ureteral catheterization in the study of surgical lesions in the kidney, as none of them are exact and accurate. The instruments for segregation of the urine by means of the formation of an artificial partition in the bladder, as by Luys' (1) segregator, or by means of pressure upon the ureters through the abdominal wall as by Heusner's (2) separator, are also not to be depended upon for accurate division of the urine from the kidneys, and have the additional fault that the resultant urine may suffer contamination from the bladder wall.

The cause and progress of the bladder disease and the effect of treatment upon the condition may be minutely followed by the cystoscope. Treatment may be changed to suit conditions that may arise and harmful procedures may be eliminated.

The ease and painlessness of cystoscopic examination eliminates the main argument against its use. In none of the following 45 cases of bladder disease was the urethra or bladder cocainized. This includes several hundred examinations, as it was the custom to note the bladder condition cystoscopically at each treatment. Several cases, on account of the painful character of the lesion and the marked alteration in the bladder wall, required opium suppositories to control the pains following bladder distention with the irrigating fluid. For inspection of the bladder with the examining cystoscope no dilatation of the urethra is necessary, save occasionally in virgins with very small meatus. The instrument used for catheterization of the ureters occasionally requires slight dilatation of the urethra.

Cystoscopic examination should cause little or no pain and no ill effects to the patient or to the patient's condition. No injury or ill effects from the examination alone were noted in any of these cases.

The instruments may be sterilized in formalin vapour or by scrubbing with tincture of green soap and placing in carbolic acid solutions. The ureteral catheters may be sterilized in formalin vapour or, as is the writer's custom, boiled in a saturated solution of common salt in water. Another useful solution for boiling catheters is saturated solution of ammonium sulphate in water; but this, while slightly prolonging the life of the catheters, causes crystals of the salt to be deposited on them during cooling. The common salt solution is convenient and efficient; one catheter of the writer's having been boiled in this way eighteen times, before the silk and gum tissue became markedly injured.

The cystoscopic instruments used were a simple, indirect examining cystoscope of the Nitze type, the Tilden Brown catheterizing cysto-

scope and the Kelly cystoscope as modified by Cullen. Other instruments were used experimentally, but the above were those constantly in use.

For diagnostic and catheterizing purposes water dilatation of the bladder was the rule. The patient was in the lithotomy position upon a gynæcological examining table. If it was necessary to examine the bladder with the Kelly instrument for applications and other purposes, the hips were elevated, or the patient put into the knee-chest position, in order to get air inflation of the bladder.

The cases noted in this paper were all examined in a public clinic (Vanderbilt Clinic), and the fact that they returned for treatment is evidence of the lack of discomfort that the examination caused. The writer is indebted to Drs. Healy, Proben, Roff, Stone and Meeker for referring these cases. The following abstracts of the histories of 45 cases note the more important conditions found at cystoscopic examinations. The discussion of the cases follows their citation. Frequency of urination was the most common symptom which caused a cystoscopic examination to be made. This frequency in the histories is estimated in amount by the number of times a woman has to arise at night to urinate.

Abstracts of the Histories of 45 Cases.

Clinic No. 44,529.—Frequency—pain—urgency. No return urgency. Right cystic ovary. Cystoscopic examination. Sclerotic stricture of the urethra. Chronic hypertrophic trigonitis.

Clinic No. 46,270.—Frequency 3 to 4 times at night. Cystoscopic examination. Atrophic cystitis. Hyperæmia of trigone. Diverticula of bladder.

Clinic No. 46,067.—Frequency 3-4. Cystoscopic examination. Calculous urethra. Loss of sphincter control. Acute hyperæmic cystitis.

Clinic No. 43,833.—Frequency 1-2, pain, urgency. Symptoms date from operation of abdominal suspension for retroversion two years ago. Pain on left side. Cystoscopic examination. Bladder divided into two sacs by partition which occupies the mid-line and corresponds to suspension ligament. Chronic hypertrophic trigonitis. Atrophic cystitis.

Clinic No. 44,995.—Frequency 3-5, pain, urgency. Uterus retroverted. Cystoscopic examination. Acute hyperæmic trigonitis. Benefited by replacement of the uterus without further treatment and cured by bladder treatment.

Clinic No. 45,498.—Frequency, bearing down pain, burning, urgency, for 2 years. Left pyosalpinx. Endocervicitis and cervical enlargement. Cystoscopic examination. Acute purulent cystitis with marked hyperæmia and œdema of mucous membrane.

Clinic No. 45,500.—Frequency, burning and painful urination for 3 years, since birth of child. Frequency worse for last two months. Cystoscopic examination. Chronic hypertrophic trigonitis with marked epithelial proliferation and definite reddening and localized inflammation of right ureteral orifice. Catheterization of kidney showed no tubercle in kidney urine.

Clinic No. 45,465—Pain in back. Frequency for 4 years. No burning or urgency for last 3 years. Cystoscopic examination. Chronic atrophic trigonitis.

Clinic No. 45,499.—Pain in hypogastrium. Frequency 1-3, slight urgency. Left cystic ovary. Lactation atrophy of uterus. Endocervicitis and enlargement of cervix. Cystoscopic examination. Chronic atrophic cystitis. Chronic congestive trigonitis.

Clinic No. 45,379.—Slight burning. Frequency 1-3. Marked frequency in day. Return urgency. Endocervicitis and cervical enlargement. Cystoscopic examination. Chronic congestive cystitis. Chronic hyperæmic trigonitis. Ureteral orifices normal.

Clinic No. 45,310.—Frequency, pain and urgency for six months. Has had frequency occasionally during last 3 years. Fibroma of cervix. Cystoscopic examination. Chronic atrophic cystitis, which is most marked where the cervical tumor bulges into the bladder. Acute hyperæmic trigonitis. Both ureteral orifices inflamed and reddened. Catheterization of ureters showed kidney urine normal.

Clinic No. 43,919.—Frequency 2-4, urgency, moderate pain for 6 months. Bilateral salpingitis. Endocervicitis. Cystoscopic examination. Marked congestive hypertrophic cystitis. Large hypertrophied cervix uteri bulges into the bladder and keeps right ureteral orifice open.

Clinic No. 41,600.—Frequency and pain for one year. Blood in urine. Enlarged cervix with endocervicitis. Cystoscopic examination. Chronic exfoliative cystitis in patches. Right ureteral orifice irritated and inflamed. Small ulcer undermined and serpiginous immediately above the orifice. Ureters catheterized, but no tubercle found in kidney urine.

Clinic No. 44,797.—Frequency, urgency and pain for three years. Large uterus slightly prolapsed. Large cervix. Cystoscopic examination. Chronic hyperæmic cystitis. Chronic exfoliative trigonitis.

Clinic No. 43,645.—Marked frequency, pain and urgency for 20 years. Frequency often 10-20 times at night. Cystoscopic examination. Chronic hypertrophic cystitis. Marked chronic trigonitis.

Clinic No. 44,818.—Frequency and burning only when walking about. None at night. Cystoscopic examination. Marked urethritis. No inflammation in bladder save a little near outlet.

Clinic No. 44,862.—Slight frequency and pain on urination. Cystoscopic examination. Moderate atrophic cystitis. Upon left side are two ureteral orifices lying side by side, each of which extends to kidney. As methylene blue is injected, one ureteral catheter, flows out of the other.

Clinic No. 44,393.—Marked frequency, pain, urgency and return urgency for 2 months. Bloody urine. Cystoscopic examination. Acute hyperæmic cystitis with bleeding granulations and a great deal of exfoliation. Ureteral orifices not inflamed more than the rest of the bladder. Ureters catheterized and kidney urine negative for tubercle.

Clinic No. 44,186.—Frequency 1-2 and slight urgency for 4 months. Right floating kidney. Perineorrhaphy 4 years ago. Moderate cystocele. Cystoscopic examination. Marked chronic trigonitis. Slight chronic cystitis. Right ureteral orifice reddened. Ureters catheterized and kidney urine negative for tubercle.

Clinic 43,700. — Age, 19. Frequency 5-6. Urgency, pain and return urgency for 6 months. Pain in right side for 3 weeks. Lost 10 lbs. in 3 weeks. Headache. No abdominal pain. Much pus in urine. Tubercle bacilli and long grooved angular leucocytes found in urine; their protoplasmic outline irregular and swollen. Vacuoles and detached nuclei in leucocytes. Many red corpuscles. Cystoscopic examination. Acute hyperæmic exudative cystitis with several small ragged undermined ulcers. Right ureteral orifice markedly inflamed and left orifice slightly inflamed. Ureters catheterized. Tubercle pus and red cells found in right kidney urine, but left kidney urine clear. Nephrectomy by Dr. Blake showed right kidney with marked tuberculous disease. Bladder cleared up under treatment after operation. Patient gained 40 lbs. in 6 weeks following operation and was perfectly well in 2 months.

Clinic No. 45,672.—Age, 23; 3 miscarriages. Frequency 2-3, urgency and pain for one year. Blood and pus in urine. Cystoscopic examination. Marked hyperæmic cystitis with exfoliation and small ulcers with undermined edges around the right ureteral orifice. Right ureteral orifice markedly inflamed. Left ureteral orifice irregular with some swelling and redness of the edges and slight congestion of the surrounding mucous membrane. There were a few reddish excrescences. Ureters were catheterized. Tubercle bacilli and pus found in the right kidney urine, and left kidney urine was clear. Nephrectomy refused. Bladder improved under treatment.

Clinic No. 46,343.—Age, 16. Left tuberculous hip-joint disease with marked deformity. Frequency and pain on urination for 3 months. Cystoscopic examination. Moderate hyperæmic cystitis with small clear tubercles like fine gray points surrounded by a reddish zone of congestion and inflammation. The whole mucosa is infected and swollen. Ureteral orifices are ap-

parently normal. Pus and tubercle bacilli in urine. Ureters were catheterized and kidney urine from both sides was found to be without pus or tubercle; so it was concluded that the disease was primary in the genito-urinary tract and was due to miliary extension from focus in the hip. The bladder condition improved somewhat under treatment.

Clinic No. 43,857.—Age, 23. Hydatiform mole 3 months ago. Acute gonococcus vulvitis and endocervicitis. Frequency, pain and urgency for 3 months. Cystoscopic examination. Urethral hemorrhage, acute urethritis, acute hyperæmic cystitis with bleeding granulations.

Clinic No. 44,146—Pain, frequency and burning for 3 months. Pelvis negative. Cystoscopic examination. Chronic exfoliative cystitis. Blood and pus in urine. Ulcer of the trigone with blood vessel whose walls may be seen pulsating, running across the raw surface. Right ureteral orifice normal, left slightly reddened. Ureters catheterized. Kidney urine negative for tubercle bacilli.

Clinic No. 46,939.—Pain, frequency and urgency for 2 months. Cystoscopic examination. Acute hyperæmic cystitis with marked œdema and much swelling of the mucosa.

Clinic No. 44,736.—Moderate frequency for 8 months. Cystoscopic examination. Chronic atrophic cystitis.

Clinic No. 45,688.—Frequency and pain for 6 months. Pain on left side and back. Retroversion and endocervicitis. Cystoscopic hypertrophic trigonitis with moderate œdema and exfoliation.

Clinic No. 46,636.—Age, 56, menopause at 37 years. Frequency 3-4,urgency and return urgency. Cystoscopic examination. Atrophic cystitis with hypertrophied bands of muscle and connective tissue and small diverticula.

Clinic No. 32,326.—Frequency, urgency and return urgency. Perineorrhaphy and suspensio uteri 3 years ago. Cystoscopic examination. Chronic atrophic cystitis. Moderate hyperæmic trigonitis. Bladder is distorted and ureteral orifices are displaced by fixed uterus.

Clinic No. 44,900.—Pain on urination and blood in urine for 6 months. History of syphilis. Pregnant 4 months. Cystoscopic examination. Marked hypertrophic cystitis with bleeding granulations. Large syphilitic (?) ulcer of fundus of bladder, marked varicosity of veins of bladder. False membrane of ulcer. Ureteral orifices negative. Ureters catheterized, and kidney urine negative for tubercle. Bladder wall firm and cannot be distended. Improved under anti-syphilitic and bladder treatment.

Clinic No. 44,370—Frequency, burning and pain for 10 years. Bearing down pain. Cystoscopic examination. Chronic exfoliative cystitis with moderate papillary excrescences and small inflammatory cysts. Ureteral orifices patulous.

Clinic No. 43,735.—Frequency and pain on urination for 6 years. Operation for cystocele 6 years ago. Has had electrical treatment, static and faradic, 3 years ago. Cystoscopic examination. Chronic hypertrophic trigonitis in the neighborhood of the scar of the cystocele operation, which can be seen as a ridge in the trigone. Right ureteral orifice inflamed and displaced as a result of the operation. Ureters catheterized, and kidney urine negative.

Clinic No. 45,010.—Marked incontinence of retention and frequency for 9 years since complete hysterectomy 9 years ago. Cystoscopic examination. Bladder markedly dilated with 3 large saculations. Chronic hypertrophic cystitis with very great hypertrophy of muscular and connective tissue bands causing innumerable diverticula. 5-2 c.m. deep. Much exfoliation of the mucosa and marked hyperæmia. Ureteral orifices displaced, but otherwise negative. The bands of muscle resemble in appearance the columnæ corneæ of the heart valves.

Clinic No. 46,661.—Frequency, pain and urgency for 2 years. Worse in last 3 months. Pregnancy 3 months. Cystoscopic examination. Severe granular hypertrophic cystitis over the whole bladder with marked papillary granulations which bleed easily. Marked exfoliation of mucosa. Ureteral orifices negative. Ureters catheterized, kidney urine negative for tubercle.

Clinic No. 43,815.—Burning and frequency for 18 months. Worse since pregnancy began 4 months ago. Cystoscopic examination. Marked hyperæmic cystitis. Mucosa soft and granular. Marked congestive trigonitis.

Clinic No. 42,549.—Burning and frequency for 2 years. Worse since pregnancy in last 4 months. Chronic endocervicitis. Cystoscopic examination. Marked congestive trigonitis. Ureteral orifices patulous. Cervix bulges into the bladder.

Clinic No. 45,669.—Burning, pain and slight urgency for 3 months. Pregnant 3 months. Cystoscopic examination. Moderate hyperæmic trigonitis with congestion of vessels.

Clinic No. 43,821. — Burning and frequency for 3 months. Pregnant 3 months. History of pelvic peritonitis and cystitis 2 years ago. Cystoscopic examination. Chronic hyperæmic cystitis with marked granular trigonitis.

Clinic No. 43,460 —Frequency for 2 months. Pregnant 4 months. Cystoscopic examination. Moderate hyperæmic trigonitis. Ureteral orifice patulous.

Clinic No. 44,151.—Frequency, pain and bearing down pain for 2 weeks. Pregnant 3 months. Cystoscopic examination. Marked congestive trigonitis, ureteral orifice normal.

Clinic No. 44,442.—Frequency, pain and urgency for a week. Pregnant two months and a half. Cystoscopic examination. Slight hyperæmic cystitis with papular trigonitis.

Clinic No. 42,622 —Frequency, urgency and pain for 3 weeks. Pregnant 4 months. Cystoscopic examination. Moderate congestive trigonitis. Ureteral orifices dilated.

Clinic No. 45,051.—Frequency and pain for 1 month. Pregnant 5 months. Cystoscopic examination. Marked hyperæmic trigonitis with papillary granulations and softening of the mucosa. Much exfoliation and desquamation.

Clinic No. 45,010.—Frequency and urgency for 4 months. Pregnant 8½ months. Pain right side and much pus in urine. Cystoscopic examination. Marked purulent cystitis with papillary granulations, exfoliation and desquamation. Marked hyperæmia and œdema of the mucosa. Ureteral orifices patulous. Ureters catheterized, and kidney urine contains no pus. Improved and went to full term under bladder treatment.

Clinic No. 44,688.—Frequency and urgency during last 3 months. Blood in urine. Pregnant 9 months. Pain in abdomen under liver. Temperature 102, pulse 110. Cystoscopic examination. Marked purulent cystitis with hemorrhagic papules and granulation-like spots. Marked varicose enlargement of the veins of the bladder, hemorrhage from veins. Intense congestion, hyperæmia and œdema. Much desquamation and exfoliation. Ureteral orifices patulous, but otherwise negative. Ureters catheterized, and kidney urine contained no pus. Bladder improved under treatment and cleared up after delivery.

A short discussion into the pathology of cystitis will be required to explain these findings.

The most common condition of chronic inflammation of the trigone, or trigonitis, is usually one which results from a simple hyperæmia and congestion of the vessels; actual infection may precede or follow the congestion. The line of separation between chronic congestion and chronic inflammation of the trigone is often hard to determine. There is usually marked hyperæmia with marked dilatation of the blood vessels. The intimate relation between the vesical arteries and those of the neighbouring pelvic organs makes this very easy. The membrane loses its lustre, the mucosa becomes reddened and there is evidence of flaky desquamation and exfoliation of epithelial cells, leucocytes and pus. In a later stage, the mucosa of the trigone becomes velvety in appearance, and, in some cases, there are proliferative processes, which may lead to papillary or papilloma-like excrescences. These cases of trigonitis show epithelial proliferation, marked round-celled infiltration, involving particularly the submucosa. In addition to these changes Heymann (3) has drawn attention to a change in the epithelial elements from the normal bladder mucosa to flattened epithe- rise above the surface. These processes may take alveolar arrangement below the level of the surface.

In chronic cystitis the changes are more general; the mucous membrane has lost its normal pinky white appearance, and appears more or less generally reddened. This reddening and inflammation may appear generally or only in certain patches, and cases have been noted in this series, in which the inflammation extended in streaks along the line of the blood vessels of the bladder wall. The mucosa is dull red in appearance and may here and there show small ulcerations. There is frequently desquamation of the epithelium, and interstitial hæmorrhages, showing on the sruface, are not uncommon. When there is considerable ulceration and necrosis, membranous or gangrenous cystitis may result.

The muscle of the bladder is sometimes involved in the changes of cystitis and may hypertrophy and enlarge to project into the bladder cavity as thick bundles or network, forming cavities into which the mucosa may penetrate. In one case, No. 45010, this was associated with marked distension, lack of tone of the bladder wall and incontinence of retention. The muscular bands were as thick as a lead pencil and formed a network. The connective tissue in the muscle bundles increases and there follows a hypertrophic sclerosis of the muscle of the wall.

Chronic atrophic cystitis is not an uncommon condition in women after the menopause, and is often associated with more or less sclerosis of the external genitals, as in Case 44529, where there was difficulty in urination on account of a sclerosis or atrophic vulvitis, and the white firm tissue around the external meatus constricted the opening to almost pin-point size; but was easily cured by one dilatation of the orifice with steel dilators.

The mucosa in atrophic cystitis is dull and thickened. The blood vessels are not seen in the fundus and there is often atrophic retraction of the ureteral orifices. This process is usually accompanied by more or less irritating hypertrophic trigonitis. This condition is the most common cause of frequency of urination in women past the menopause.

Inflammation of the bladder is usually effected by congestion of adjacent organs. Thus an endocervicitis with enlargement of the cervix is not an infrequent accompaniment of a congestive hypertrophic trigonitis. The intimate relations of the cervix and the trigone and their blood vessels explain this association. The enlarged cervix also often presses upon the trigone which from the existing inflammation has lost its normal elasticity, and this will often cause alteration in the structure of the ureteral orifices, which, from being small elevated papillæ,

became stretched, flattened and elongated. The base of the orifice may often be seen through the patent opening. This condition is also often present during pregnancy where the enlarged cervix bulges into the bladder.

These conditions injure the valve-like power of the ureteral orifice and cause it to allow regurgitation of urine into the pelvis of the kidney. This may be a cause of pyonephrosis and pyelitis of pregnancy. This regurgitation was well demonstrated experimentally by Sampson, who obtained it after injuring the ureteral orifices in animals.

Pregnancy, also from the congestion it brings, may be the cause of the recrudescence of old trigonitis, as was noted in Cases 46661, 43815, 42549, 45669, 43821, 43460, 44151, 44442, 42622 and 45051. In these cases there was in the early months of pregnancy some frequency of micturition. The increased congestion of the trigone showed very marked in the engorged arteries, which could be traced upwards from the bladder orifice.

The writer also wishes to draw attention to a peculiarly acute cystitis in the latter months of pregnancy, which was present in two cases, Nos. 45010 and 44688. In these cases, both about full term of pregnancy, there was a very acute cystitis with large amounts of pus in the urine. Cystoscopic examination showed a very old inflamed bladder wall with marked œdema and hyperæmia. The condition was general and uniform. There was marked desquamation and exfoliation of epithelium and pus. The exfoliated cells and shreds clung to the bladder wall like small tags. The picture was that of an extremely acute cystitis with very marked œdema and congestion. The mucosa was markedly softened, swollen and boggy. The amount of pus excreted was great.

Both these cases were examined on account of a suspected involvement of the kidney by pyelitis or pyonephrosis of pregnancy. In one there was pain on the right side, which seems to lend colour to that diagnosis. However, catheterization of the ureters brought clear urine from the kidneys, eliminating all possibility of suppurating kidney conditions. These two cases gave such a clinical picture of pyelitis that it was only by cystoscopic examination and ureteral catheterization that such condition could be eliminated. The writer does not believe that a diagnosis of pyelitis or pyonephrosis of pregnancy, in the absence of marked renal tumours, can be definitely and accurately made without cystoscopic examination and ureteral catheterization. The place of origin of the pus in the urine must be definitely located. A purulent cystitis frequently accompanies infection of the kidney in pregnancy, and, without

cystoscopic examination or the palpation of a marked renal tumour, it cannot be said whether the pus arises from the kidney, the bladder, or both; the microscopical examination of the urine for renal or bladder cells offers no decided proof of either condition. An increase in temperature cannot be taken as a definite guide in the differential diagnosis of these conditions, as in acute hyperæmic cystitis of pregnancy fever may be present, as in Case No. 44688.

In the earlier months, pregnancy has a distinctly evil effect upon old or latent trigonitis. The added congestion of the blood vessels and effect of the growing cervix bulging into the bladder causes an exacerbation of the condition. The diseased, inelastic trigone is stretched and irritated, and the ureteral openings are altered and distorted.

In one of the cases of pregnancy with cystitis, No. 44688, there was marked hæmorrhage from the bladder. This was due to markedly varicose veins in the bladder. The oozing could be directly traced to the enlarged vein, although it was also caused by the hæmorrhagic granulations. Similar cases have been reported by Kubinyl (5), who believes it to be due to the increase in blood pressure and the insufficiency of the valves of the veins. Proust (6) also reports two such cases in pregnancy, and they state that cystotomy, packing and even direct ligation of the vein may be required. However, in this case, astringent treatment, while it did not entirely stop the bleeding, permitted the woman to go to term.

In three cases, Nos. 43700, 45672 and 46343, there was tuberculous cystitis. In two cases it was associated with tuberculous disease of the kidney. One case was operated upon, the kidney removed and the cystitis cured; the other refused operation and the bladder was treated locally with small improvement.

The third case was one of tuberculous cystitis, primary in the genito-urinary tract, but secondary to an old tuberculous hip-joint lesion. It is very rare in tuberculous genito-urinary disease to find the bladder alone involved, as Saxtorph (7) in 10,016 autopsies found 205 cases of chronic genito-urinary tuberculosis, and amongst these 205 cases, there were 52 of secondary implication of the bladder and only one case in which the bladder was alone involved. However, in Case No. 46343 no other focus of tuberculosis could be found in the genito-urinary system, and the extensive disease of the hip-joint did not seem to have been communicated to any other organ save the bladder. The uterus and tubes were free, the kidneys did not show any abnormality in urine and the lungs were not apparently involved.

The stage of invasion of the bladder in this case was the very earliest. The little gray white tubercles could be seen, surrounded by a reddish zone of inflammation, and in only two places did there seem to be any breaking down and ulceration. In these places the tubercles had apparently coalesced and formed a small conglomerate mass, which broke down to form an ulcer. The condition improved very slowly under treatment, and the patient is at the present time under observation. The condition of tuberculosis of the bladder is, however, most resistant to treatment, and a cure, except in cases, where an involved kidney or other focus is removed, is rare.

Amongst the 45 cases were four, in which the bladder inflammation was the result or followed by a previous gynæcological operation. Two cases followed suspension of the uterus by the abnominal route. In one case there was marked sacculation of the bladder with patches of inflammation and congestion; in the other there was considerable distortion of the trigone, alteration in the site of the ureteral orifices and sacculation of the bladder. In case No. 45010 there has been a complete hysterectomy for purulent tubal disease. The bladder was very marked dilated and would retain 1500 c.c. The walls were much congested, and the fibres of bladder muscle were separated into a network of firm, stout bands, the largest as great as a lead pencil and the smallest as the lead itself. The mucous membrane dipped into the crevices and the ureteral orifices were much distorted. The bladder was very irregularly dilated and had lost its tone: incontinence of retention was present. This case improved somewhat under dilatation of the urethra and other treatment. Case No. 43735 had had a cystocele operation, and the scar of the operation wound could be seen within the bladder, although it did not seem to have penetrated the bladder mucous membrane. The left ureteral orifice was displaced and the region of the scar inflamed and congested.

Bladder inflammation following upon gynæcological operations is not infrequent and is usually blamed upon a post-operative cystitis; however, it frequently happens that the cause may be more directly laid to the operation itself as in these four cases.

Blood in the urine is said to be an indication of tuberculous genito-urinary disease; but in this series it appeared several times when tubercle bacilli could not be demonstrated in the urine. It was due in some cases to a small bleeding ulcer and, in one case of acute systitis of pregnancy, to bleeding granulations and varicose veins of the bladder. It is, however, a symptom which is a direct and urgent indication for accurate study of the case and visual diagnosis of the lesion by means of the cystoscope.

One case, No. 44900, showed a large single ulceration of the fundus with marked necrosis and false membrane formation. The bladder was uniformly inflamed and markedly contracted. The case was watched and treated throughout pregnancy without benefit; but after delivery slight improvement took place under anti-syphilitic treatment. Operation of cystotomy was refused. Curettage of the ulcer was not done on account of the friability of the bladder wall.

The treatment in general of these cases of cystitis consisted of irrigation with a bland cleansing fluid. This solution usually consisted of sodium bicarbonate, one dram to the pint of water. This is a better solvent of mucus, pus and albuminous substances generally, than is the boric acid solution so commonly used. This is well known by otologists, who recognized the value of alkaline solutions in suppurative ear diseases. If there was a great deal of mucus, the solution was made of double strength, and, if there was a great deal of pus, one dram of sodium carbonate was added to the cleansing solution. These mixtures are bland and cleansing, and offer some advantage over the common boric acid solution.

Various antiseptic solutions were tried in the hope of finding one which would give the maximum effect with the minimum amount of disturbance. Rovsing's carbolic acid solution, five per cent., was tried in the cases of tubrculosis of the bladder and in other chronic cases. It caused a great amount of pain, in one case hemoglobinuria, and did no good. It was tried in all in 12 cases, and only one case was benefited. A number were made worse symptomatically and their condition was not improved. The treatment is one of great severity and often causes intense irritation.

Sublimate solutions were not tried, as the known inefficiency of this antiseptic in the presence of alluminous matter was considered a contraindication for its use. It has been used by Guyon, but has not been praised by other surgeons.

Gomonol was used in various strengths, but no definite benefit could be proved from its use. It was also used in conjunction with olive oil, and here seemed to have some soothing properties, but no different effect could be noted when the gomonol was omitted and the sterilized olive oil was used alone.

In the search for an antiseptic astringent of comparatively unirritating properties quinine was tried. This substance has distinct antiseptic properties and is said to be placed midway between bichloride of mercury and carbolic acid in its antiseptic properties. It is comparatively unirritating, easily made, and may be retained in the bladder

without danger. The salt used was the bisulphate, which is easily soluble in water and was made up one dram to the pint. This solution had a distinctly good effect and was the most efficient of the antiseptic solutions used. The few cases reported here cannot be made the basis for the introduction of a new treatment; but the marked improvement in treatment of chronic cases by this solution was encouraging.

Various silver salts were tried and the nitrate was found to be so irritating that its use was discontinued. In the choice of the colloid silver preparations the experience of chemists and ophthalmologists was considered. It has been found by Derby (10) that of these various preparations, argyrol and collargol are inert as bactericides, and that all the colloid silver salts are inefficient in the presence of albuminous matter. The preparations may be divided into three classes: the non-irritating of low bactericidal power, as argyrol and collargol ; the more effective and slightly irritating bactericides, as protargol, and the very irritating preparations like nitrate of silver.

It has also been shown by Marshall and Neave (11) that the percentage of silver in the compound is no criticism of its antiseptic value. For these reasons and after some trial of several salts, it was concluded that it was better to have a preparation as protargol with some bactericidal power at the expense of its slightly irritating properties, than one like argyrol which has little or no bactericidal properties and is non-irritating.

Protargol, 5 per cent., was by no means used as a routine treatment. It was used in chronic trigonitis for local applications to the inflamed part and as an injection in marked chronic cystitis.

In acute purulent cystitis with exfoliation and pus formation, it was used with hydrogen peroxide as a cleaning and antiseptic combination. It has been shown by Futh in the treatment of necrotic endometritis and of suppurating wounds, that, if a colloid silver compound is used along with hydrogen peroxide, the action of each is made much more effective. For this reason the two were combined in the treatment of purulent cystitis. Hydrogen peroxide, one third strength, and protargol 5 per cent., were injected alternately through a catheter into the bladder by means of a half ounce syringe. The mixture was allowed to set for a few minutes, then it was washed out by the cleansing solution, injected by the same syringe. No difficulty or trouble was ever noted from distension of the bladder by the peroxide. The peroxide foam poured out of the catheter and was finally washed out by the quinine solution or the cleansing solution. This treatment is

not one which would be advised for cystitis in the male, but it has given excellent results in purulent cystitis in the female.

The exfoliation, desquamation and pus cells are in this way washed away as they cannot be by any irrigation; the bladder mucous membrane is left clean and is prepared for treatment by antiseptic or astringent solutions or for direct applications.

For direct applications to ulcers and localized inflamed spots, nitrate of silver fused on a metal probe, or protargol solution on a swab, were used. The patient was put in the knee-chest position, and applications were made through the Kelly-Cullen cystoscope. The place for the application was first located by means of the examining cystoscope under water dilatation.

It was also found that in cases of acute cystitis, or cases where there had been extensive treatment, that a soothing application was of benefit. Olive oil was used with some success, but finally a preparation of Irish moss was found to be the most useful. The value of this preparation consists in keeping the bladder walls apart and lubricating them, so that no friction or irritation results. The preparation is approximately the same as many lubricating jellies put up in tubes for use in vaginal examination. This soothing lubricating preparation of Irish moss is also of use in lubricating the cystoscope before its introduction into the urethra. It is prepared as follows:—

Chrondus (Irish Moss), 45 g.

Distilled water, 1,500 c.c.

Wash the Irish moss in cold water, drain off water wash again and drain. To the washed Irish moss add 1,500 c.c. of distilled water and boil for 10-15 minutes, stirring frequently. Strain through muslin with expression. To the strained Irish moss add 4,500 c.c. of boiling distilled water and filter. The process of filtration may be hastened by loosely filling the filter with absorbent cotton. Evaporate the filtrate to one-fifth by bulk, cool partially and add Gomonol, 1 per cent. by weight, mix well and strain through fine white flannel which has been previously boiled. Bottle in ground glass stoppered containers of about half a pint each.

This Irish moss jelly makes a useful lubricant for examinations and may be put up in metal paint tubes for that purpose. In bladder treatment the jelly should be diluted with hot water to a thick semi-solid consistency, fit for use in a syringe.

Thus the treatment of these cases of cystitis consisted mainly in the use of four compounds: the antiseptic quinine solution, the cleansing bicarbonate solution, the peroxide and silver combination, and the jelly

of Irish moss. In addition to this, appropriate treatment was directed to ulcers by direct application of silver or curettage, as was required; chronic patches of inflammation were stimulated, and lesions in the neighboring organs were treated.

If the case is one of very acute irritation, the Irish moss jelly is first inspected and a diagnosis made, the bicarbonate solution being used as the dilating fluid. The pus and shreds were then washed away by the peroxide and silver combination. The bladder was then washed and dilated by the quinine solution and more exact examination made for small ulcers, patches of inflammation and the condition of the ureteral orifices. If it were necessary to catheterize the ureters, it was usually done under the quinine solution and after the bladder had been cleansed. It was believed that in this way danger of carrying infection upwards from the bladder was eliminated, the cleansed bladder wall and antiseptic quinine solution removing this small danger. The quinine solution gives a peculiar bluish appearance through the cystoscope, but examinations can be well made with it.

If the case is one of very acute irritation, the Irish Moss jelly is injected on removal of the quinine solution. The amount of jelly injected should vary from one to four ounces. If, however, the bladder inflammation is more chronic, the patient is told to retain the quinine solution as long as possible in order to get full benefit from its antiseptic and astringent action.

In chronic cases with much congestion and irritation the peroxide and silver combination was seldom used. The aim of the treatment in all cases was first to cleanse the infected area, to direct appropriate treatment toward the special lesion and to exercise an antiseptic astringent and stimulating action upon the mucous membranes by means of the quinine solution.

It was also useful to use various drugs by the mouth. Infusion of Buchu and Fluid Extract of Triticum are unirritating. Tincture of belladonna and potassium or sodium bicarbonate should be used in combination to relieve spasm and make the urine alkaline. It is required in cases of cystitis that the urine be made alkaline during the irritating stage of the disease. Acid urine is always irritating. The patient should also be directed to drink large quantities of water and a specified amount of six glasses should be named in order that the directions be carried out.

The use of Urotropin (hexamethylene tetramine) has not been satisfactory in the writer's experience. It is inert, save when the urine is acid and it makes the urine rather irritating. It is very irritating to

the kidney and, when first given, acts as a diuretic; but on continued use may do harm. The writer wishes to sound a note of warning in regard to the prolonged use of this drug. Its value in purulent kidney conditions is undoubted: but it is of very little use in cystitis and the continued use may cause kidney irritation and hemorrhagic urine, as has been noted in four cases in the writer's somewhat limited experience. Guaiacol is a useful and efficient substitute, but it is also seldom required in cystitis. Beardsley (13) has recently collected a large number of cases in which the toxic effects of this drug was noted.

The therapeutic value of rest is very great in these cases, and a bland diet with avoidance of acid elements should be ordered. It is also important to remember that the occasion of a cystitis sometimes depends upon a coincident lesion and the bladder inflammation may not react to treatment until that is cured.

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SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.

The sixteenth International Medical Congree will be held at Budapest, from August 29th to September 4th, 1909. The executive committee of the Canadian Medical Association has reappointed Dr. W. H. B. Aikens, of Toronto, to act as secretary of the Canadian National Committee of the Congress at Budapest. Dr. McPhedran, who was chairman of the Canadian committee for the International Medical Congress held at Lisbon, 1906, will assist in securing the formation of a strong and representative committee. Any member of the profession in Canada desiring information, may communicate with either Dr. Aikens or Dr. McPhedran.

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RECIPROCITY IN MEDICINE.

The progress of Reciprocity, as regards medical qualifications, between the provinces of Canada and Great Britain is necessarily slow on account of the many obstacles in the path of its accomplishment.

The passing of the Medical Acts Amendment Act in 1906 by the British Privy Council, whereby each province of Canada is constituted a separate state for the purposes of negotiation, was a distinct step in the direction of furthering the advance of reciprocity. It may be unknown to some that this step removed one of the chief obstacles above referred to.

The difficulty experienced in Canada previous to the passing of the 1906 Act was to instigate concerted action amongst the different provinces of Canada, and for some reason or other, not quite clear to the majority of the medical profession, this idea of conjoint action between the various provinces as regards Reciprocity *only*, was skilfully mixed up with a question of an entirely different nature, viz.:—The one portal system for Canada, or in other words, the setting up of a common standard of medical examinations for all provinces, whereby interprovincial reciprocity could be attained.

This latter movement, although excellent in itself, was, as has been said, coupled with that of Reciprocity with Great Britain, and, in fact,

in many instances placed in the very forefront. Unfortunately for its success, this interprovincial reciprocity introduced an element which savoured of Dominion control of the medical profession, and herein lay the great stumbling block to the whole scheme.

The situation may be described in a very few words: By the terms of Confederation, it is expressly laid down that each province shall have complete control of all educational matters. The provinces have guarded this right most jealously, and as medical instruction, etc., naturally falls within the domain of "educational matters," any movement, however beneficial it may be in other respects, which, in the slightest degree menaces this exclusive right of the different provinces over their own educational affairs, would most certainly meet with stubborn resistance from all the provincial authorities.

It was because some of the provinces scented danger in the "one portal system," by its partaking of a Dominion nature, and thereby removing medical education from the control of the provincial authorities, and placing it under the direction of the Dominion Government, that an insurmountable difficulty was experienced in the passing of this legislation, for as some of the provinces inimical to the idea naturally agreed,— take away the control of the medical profession, and a precedent is established at once whereby other professions, *e.g.*, the law and the church might easily follow suit, and so the provincial control over educational matters would be destroyed forever.

The point at issue was undoubtedly a very grave one, and the proper understanding of it is necessary in order to comprehend the attitude of those opposed to the interprovincial scheme. It is also a justification for introducing such a lengthy discourse upon a subject which at first sight appears rather irrelevant to this article, but which nevertheless is the *raison d'être* of the Medical Acts Amendment Act of 1906. It will thus be evident that, under this act, each province can enter into Reciprocity with Great Britain, and still retain, untouched in any way, its own absolute control over medical education within that province. Besides this the act dissociated once for all the Reciprocity idea from that of the "one portal system," which latter is purely an interprovincial affair, and one which can be settled at any future date totally irrespective of the former.

As soon as the air was cleared in this respect, two provinces, which previously had been so jealous of their rights, immediately entered into negotiations with Great Britain for Reciprocity.

A thorough appreciation of these facts by some other provincial authorities might perhaps lead to a more speedy adjustment of outstanding difficulties.

Soon after the passing of the 1906 Act, Nova Scotia entered into negotiations, and after a few months settled all the terms of Reciprocity, so that by the middle of 1907 several medical men from that province had availed themselves of the new agreement. Up to the present about eleven have entered their names on the British register, but as far as can be ascertained no case of registration of British qualifications in Nova Scotia has as yet occurred.

During the latter half of 1907 the British Government placed the appointments in the Army Medical service at the disposal of the Government of Nova Scotia, thus affording to the medical practitioners of Nova Scotia an easy opportunity of entering the services.

There is good reason to believe that similar appointments to the services will be allotted in the future to each province entering into reciprocity—these provincial appointments will in no wise interfere with the privilege of any medical practitioner to compete in the regular examinations for the services.

Manitoba and Quebec were the next to enter into negotiations with the British Privy Council. In the case of each province a difficulty was encountered in coming to a definite arrangement whereby the interests of the medical profession in these places were properly safeguarded. The general principle of reciprocity, however, was acknowledged as a good thing. In the instance of Quebec two points required settlement before a final agreement could be effected. The first was to prevent medical undergraduates, who had failed to satisfy the requirements of the College of Physicians and Surgeons, from going over to Great Britain, there obtaining some kind of registrable qualification, and then returning immediately to Quebec, claiming full rights to enter their names on the Quebec register.

The second point had reference to the preliminary education. The authorities of Quebec claimed a superiority for their own standard of preliminary education over that obtaining in many colleges in Great Britain, and at first suggested granting reciprocal registration to those holders of British qualifications who had had a preliminary training entitling them to a B.A. degree. According to the report of the last meeting of the College of Physicians and Surgeons of Quebec, both of these minor objections have fortunately been disposed of under conditions equitable to both contracting parties. Unless something of an unforeseen and serious character happens in the meantime, it is to be hoped that the year 1908 will see reciprocity between Quebec and Great Britain finally established.

As regards Manitoba, negotiations have been going on for a long time, but as yet no satisfactory ground of agreement has been reached.

The Manitoba authorities approve of the scheme generally. It will be remembered that Manitoba instituted, rather more than a year ago, the six year course for medical studies, and this fact has given rise to some doubts in the minds of the members of the College of Physicians and Surgeons as to whether it would be just to their own medical men to allow practitioners from Great Britain with a five years' course to enter into competition in Manitoba.

Ontario and British Columbia are both in the "resting stage." Neither province gives any definite reasons for not promoting the Reciprocity scheme, simply saying that the conditions amongst the medical community are not ripe for such a movement.

In each of these provinces there is a Central Examining Board—part of the machinery of the College of Physicians and Surgeons—which exercises absolute control, by means of examination, over all medical men applying for a licence to practice. It is feared in some quarters that any relaxation of the powers of this Central body would result in the admission of undersirable physicians from Great Britain. Whether this be the case or no is a matter for careful investigation, and as reciprocity, by its very nature, implies some sort of a working agreement wherein a process of "give and take," founded on equitable principles, must necessarily figure very largely, surely before condemning any scheme, such as medical reciprocity, it seems very essential for the contracting parties to find out on what terms they could come to an agreement. However this may be, the fact remains, no response whatever has been forthcoming from either Ontario or British Columbia to the invitation of the British Privy Council on behalf of the General Medical Council with reference to the possibility of establishing reciprocity between Great Britain and these two provinces.

It may also be pointed out that an agreement between Great Britain and any of the provinces of Canada, does not necessarily carry with it any obligation for interprovincial reciprocity between those provinces which have thought fit to enter into a treaty with Great Britain. It has been put forward in some cases that, where two or more provinces of Canada enjoy reciprocity with Great Britain, a medical man from one particular province might register in Great Britain, and then by virtue of his British registration claim a like privilege in another province of Canada. This is not so, unless the provinces entering into the contract with Great Britain expressly desire it, and have definite clauses in their agreements providing for this interprovincial reciprocity.

Finally, it ought clearly to be understood that any agreement entered into by the provinces of Canada and Great Britain can be cancelled at

any time by either of the contracting parties, whenever they feel that the scheme of reciprocity is not working out fairly.

THE PARATHYROIDS.

It is only in recent years that the importance of the parathyroids has been established. These minute glands were first described by Sandstrom in 1880 and since then have been investigated by many. It is now pretty well established that their removal produces tetany. It was formerly thought that removal of the thyroid gland caused this affection as the experiments were performed on dogs and other carnivora whose parathyroids are very close to and sometimes enclosed in the thyroids, the removal of the latter gland almost necessitated the removal of the parathyroids as well and so produced tetany. In herbivorous animals, however, the parathyroids are at some distance from the thyroid and so removal of the thyroid in these did not cause tetany. One of the most recent papers on the parathyroids is by William Halsted and H. M. Evans of Baltimore, who show that the parathyroids are always supplied by definite parathyroid arteries given off from the inferior thyroid and also from the anastomosing channel between the superior and inferior thyroid arteries. Halsted believes that the parathyroids are often sacrificed in ligating the main trunk of the inferior thyroid artery for the arrest of hæmorrhage. It is therefore important to recognize the origin of the blood supply to these glands and to ligate the inferior thyroid branch to the thyroid gland beyond the point where the parathyroid artery is given off. In some cases where the blood supply has been cut off the parathyroid has been successfully transplanted into the thyroid gland. In all operations for removal of portions of the thyroid it is important also to keep as close to the gland as possible, removing no adjacent tissue, and so avoid the removal of the parathyroids. Should tetany occur good results have been obtained by feeding the patient with the parathyroids of the ox.

THE TREATMENT OF MENINGITIS.

Another step in the medical knowledge of cerebro-spinal meningitis has been attained, and it is indicated by the recent paper published by Flexner and Jobling in the Journal of Experimental Medicine of January 1st. They have collated the results to the present time accruing from the employment of the meningococcus serum; their claims are modest and the data are put forward unembellished by any undue

claims in favour of the success of the treatment. It must be said that their results appear to be extremely good, so far ahead of any previous results obtained in this disease, that one may be forgiven for supposing that this method of treatment comes nearer the mark than anything hitherto discovered. The serum is made from the horse's blood, and a long process of immunization is necessary. Many different strains of the meningococcus are used in its preparation. The serum is injected into the spinal canal by lumbar puncture, and is generally put in after some of the cerebro-spinal fluid has been removed. One series of cases shows the following result: of nine cases untreated by serum, all died but one; of eleven cases of the same epidemic treated by serum three died and eight recovered. We congratulate the authors upon their results, and hope that this is but a promise of a brighter future in the treatment of this hitherto intractable disease.

The following comment upon conditions in California appear to us to be worthy of publication. It is contained in a letter under date of February 3rd, from a physician who is now resident in Riverside:—

"I suppose it could be urged that a man, who has lived the greater part of his life on the bleak shores of Cape Breton, where storms occur frequently, should not be too hard to please in the matter of climate, but I left my home for a land of which the climate is described as in every way desirable, and, therefore, feel justified in judging it by what I have found, as compared with what I was led to expect. Arriving on the first day of December, I was charmed by bright sunshine and a temperature in the eighties in the shade of the verandah. At night-fall, however, the thermometer dropped to below 40° F., the sudden fall inducing coryza and symptoms of hay fever. Even during the day, when out of the sunshine the wind feels chilly and increases my trouble. Flowers bloom in profusion by the way side; only very early a white frost occurs. Strong winds seldom blow, and I have not yet seen anything worthy the name of a storm. The present is the wet season; six days of incessant rain ended last Wednesday, and yesterday (Monday) it began again, and is coming down in sheets to-day. We are in the centre of a great orange-growing district, made possible by irrigation. The city is prettily laid out, but as dull as a cemetery for visitors. I have a nice boarding house, with good food, and everything clean and pleasant. The rates are $15 per week for room and board. The trip out over the Santa Fé railroad from Chicago was very pleasant. The service on the train is excellent. My return ticket to San Fran-

cisco, good for eight months, with return if I choose via Union Pacific, Denver & Rio Grande, cost $145. If I were asked to recommend a place for a patient suffering from bronchial asthma, I don't think I would suggest California; but for a man who wishes to escape the cold and snow of an eastern winter, who can move about, and who desires chiefly rest and change of scene, I would cheerfully say California. The effect on my condition has been good. I have gained strength; my circulation is better, but my asthma is about the same."

The District of St. Francis Medical Association held its tenth annual dinner at Sherbrooke on the evening of Wednesday, February 12th. Despite the fact that in order to ensure the attendance of the Society's guests from Montreal the dinner was set for the ultra-fashionable hour of 9 p.m., some forty members attended, under the chairmanship of the President, Dr. Ledoux.

The St. Francis Association is the type of what a medical society in this province should be: it is bilingual, an admirable spirit of comraderie binding together the members of the two races; its monthly meetings are looked forward to and well attended, members think little of travelling twenty to forty miles in order to be present; its membership is steadily increasing, so that now numerically as well as by the standing of its members it reflects accurately the progression of the district and is able to work effectively in raising the status of the profession, in determining the scale of fees, and in abolishing contract practice.

The *Maritime Medical News* has entered upon its twentieth year and celebrated the occasion by organizing a company for the publication of the *Journal*. The directors are:—Dr. D. A. Campbell, president; Dr. Murray McLaren, vice-president; Dr. W. H. Hattie, secretary; Dr. J. W. Daniel, Dr. John Stewart, Dr. G. M. Campbell, Dr. W. H. Hattie, Dr. James Ross. The directors make an appeal to the profession for support, which, we trust, will be successful. The editors in the past have done good service to medicine, and have given to the *News* that indefinable thing which is called character.

The Montreal General and the Notre Dame hospitals have made a joint request to the Quebec Government to increase the provincial grant to each of those institutions from five to ten thousand dollars. The

governing bodies feel that their burden should be shared by the public at large, for whose benefit the hospitals are conducted. There is nothing unreasonable in the proposal, and we trust that it will have a sympathetic consideration from the Government, which has always been well disposed towards good works.

OBSTETRICAL NOTES FROM EUROPEAN CLINICS.

Graduate students here on the Continent fall readily into one of two classes:—First, those who are here for the purpose of obtaining clinical training which they should have had during their undergraduate years, and, second, those who have already had experience either in hospital or general practice and who have come to obtain greater proficiency in some particular branch of medical science. For all, the larger centres, such as Berlin and Vienna, have the great advantage of unlimited clinical material, and yet in both these cities there are corresponding disadvantages for the man who would specialize. The first of the abovementioned classes, though numerically far the larger, is composed for the most part of men who speak no German, have no desire to learn the language, but who are willing to pay over-liberally for courses which, though often useless to the man of training, must be taken before he can get the more desirable advanced work, for which a knowledge of German is desirable, nay, indispensable. Thanks to that most fortunate feature of the German system, the Geheimrath of Berlin to-day, is he who yesterday was the master of his art in some smaller town, be it Bonn, Halle or Marburg, where he was much more approachable and much more flattered by the presence of foreigners in his clinic. Indeed, there are still those who prefer a small clinic with the privilege of working, to the Metropolitan clinic with increased income but more distraction, (Krehl and Mueller both refused to come to take Van Leyden's place).

The small town has a twofold advantage for the student; in it one comes nearer to the chief, and in it, one of necessity learns the German language and makes German friends, whom, the chances are should he return five years later, he will find in charge of one or other of the clinics in a larger centre.

During this and a previous trip it has been my good fortune to visit a number of the clinics for the diseases of women in Austria and Germany—Graz, Vienna (3), Prag, Münich (2), Tübingen, Würtzburg, Leipsic, Dresden and Berlin (2). In all of these, save that of Wertheim in Vienna, which was entirely gynæcological, the two divisions,

gynæcology and obstetrics, are under the one chief, and it was with the latter division, or rather the border-line between the two—the handling of infected cases and abortions—that I was particularly interested.

Concerning these clinics, with the exception of Tübingen, Münich and Berlin, much of my knowledge has been obtained from conversation with the assistants, but from what I have heard and seen, the clinical material here, though more extensive, is no better than either in Baltimore or Montreal. On the other hand, the student seems much more alive to the possibilities than do ours, and the teaching, which is almost entirely clinical, is not to be compared. To those familiar with Bumm's book, it will be no surprise to hear that in his clinics one not only sees the patient, but, thanks to his skill with chalk, is made practically to see whatever pathological condition may be present. Other teachers not equally gifted, obtain similar results by means of drawings and diagrams shown with the projection apparatus.

Of the clinics themselves, probably the most elaborate and best equipped is that of Leopold in Dresden, where too the training of nurses seems to be of an unusually high standard, and the technique particularly good. Prag, though one of the smaller clinics, was particularly interesting, perhaps because in many respects (having dual languages, the Czech and German) similar to that of Montreal, but undoubtedly, thanks to the courtesy of Professor Kleinhans and his assistants. The obstetrical clinic was so thoroughly clean and well-conducted, the patients looked so well cared for, and at the same time there were so many dirty cases being sent in from the city, that there was unbounded opportunity for interesting work. Many Canadians and Americans have worked in Prag with Chiari. There is still good work to be had in medicine (v. Jaksch), and in gynæcology and obstetrics.

It has not been possible to go to Freiburg, though all the younger gynæcologists are very enthusiastic over Krönig, who seems to be the coming man. Everyone is working—Krönig, Doederlein, Amann, Bumm, v. Rosthorn, v. Franque, and the younger men, Bürger, Baisch, Krömer, Liebmann—all working, and it is not a question of income, it is a question of getting to the top.

It is probable that the main topics for discussion in the field of Obstetrics are:—

(1) Scopolamine—morphia anæsthesia.
(2) Eclampsia.
(3) Vaginal section: Colophysterotomy—anterior.
(4) Pubiotomy—Hebosteotomy.

In dealing with these questions, offering so many different sides for observation, and over which, consequently, there has been much and useless discussion, two expressions of opinion come at once to mind:—

"There is a practice of obstetrics suited to clinics, and a practice suited to private houses. Operations must be chosen, not on account of their scientific value per se, but on account of the availability: and no one is justified, for the sake of the child, in subjecting a mother to an operation and its attendant risk, unless under the most favourable conditions, which, indeed, obtain only in special obstetrical clinics (Doederlein)."

"The difference of results from accouchements in special clinics and accouchements at home will undoubtedly result in bringing many women to the clinic who otherwise would not come—and the practice of so-called hospital obstetrics will unquestionably gain headway in the future" (Hegar—very free translation).

Scopolamine-morphia.

From conversation with many of the assistants in the various clinics, one receives the impression that Gauss's extollation of Scopolamine-morphia has in general failed in confirmation.

In Münich, one-half of the patients only were given injections with a view of testing its value. It would be unwise to offer an opinion before the results of these researches are published, but from personal observation of a number of these cases, and after reading the report of the proceeding at the recent Gynæcological Congress in Dresden (Gyn. Rundschau, 1907, No. 20), one cannot but distrust the workings of the drug. In the first place, its effects are not uniform. For a satisfactory result, absolute quiet, something almost impossible to obtain in a large delivery room, is the first requisite; on the other hand, the preparations vary greatly in potency, and experience has shown that a fresh preparation is essential, which, of course, makes its use in private practice very difficult. Then, too, in private practice the inability of the physician to guarantee a satisfactory result from the exhibition of the drug, together with the possible coincident, if not consequent injury (deep asphyxia, etc.) to the child, would undoubtedly deter one from its use. Of the five assistants in the Münich clinic, four expressed the opinion that the drug was of no particular value; the fifth holds that it is a help to many patients, but "would not care to use it in private practice." In but one clinic, that of Krönig in Freiburg, have the results of scopolamine-morphia been uniformly successful. Gauss is undoubtedly master of the technique of its admin-

istration. General opinion tends to the conclusion that it would be hard for anyone else to obtain similar proficiency.

Eclampsia.

Everywhere the teaching is to deliver as rapidly as is compatible with the safety of the mother. Where labour has already begun, vaginal section seems to be the favourite method of operation, though in the Dresden clinic the Bossi dilator is still used.

Professor Doederlein recently gave the following instructions to his assistants:

"Cases coming to the clinic in my absence, if in labour are to be immediately delivered. In post-partum cases, and where labour has not yet begun, make a lumbar puncture and give an injection of stovaine—repeat, if necessary—morphia may be given, though it is rather dangerous in large doses. Avoid chloroform as far as possible—above all, keep the patient quiet. Complete delivery as soon as the cervix begins to dilate."

It was my good fortune to see one patient so treated:—Primipara, about twenty years of age, thirty-eight weeks pregnant, entered the clinic about 5 p.m., having had six convulsions since noon of the same day. After arrival in the clinic, she had a seventh very severe convulsion, and was given stovaine, 0.10 gm., by means of lumbar puncture, also a small dose of morphia. The urine at this time contained so much albumen that it solidified on boiling (9 gr. per liter), and the patient was very œdematous. As a result of the injections she slept quietly during the night and when awake was encouraged to take fluids. The following day she had another convulsion, but as there was no sign of the onset of labour, a second lumbar injection was given as before. Her condition remained much the same for four days, and the fœtal heart was at all times distinctly audible. On the fifth day labour pains set in, and she was eventually easily delivered by low forceps. Recovery was uninterrupted and unusually rapid.

In this one case, the result undoubtedly justified the expectant policy. Incidentally, the reason for not delivering immediately was that the ill results from vaginal section have been almost invariably due to hœmorrhage, which is extremely difficult to control unless the uterus contracts properly. In absence of pains, hæmorrhage is a grave danger.

Though an advocate of the administration of large quantities of fluid by mouth and rectum, as well as by hypodermoclysis, Professor Doederlein is opposed to the use of sweat-baths, which he contends may result in concentration of the eclamptic toxine. (Experience in the

Montreal clinic does not support this view, as the results from sweat-baths in conjunction with the administration of large quantities of fluid have given uniformly favourable results.)

Vaginal Section.

This is now uniformly recognized as a most valuable surgical means of emptying the uterus, though naturally available only within the walls of a hospital. So far, in the majority of the clinics its chief indication has been in the treatment of eclampsia. The uniform success in this field has justified a much wider application, and in the Münich clinic I was fortunate enough to see two such operations, where, with a transverse presentation, premature rupture of the membranes had been followed by prolapse of the umbilical cord. Delivery by version was accomplished in much less time than would be needed to describe the steps of the well-known operation. It would appear that in cases of pulmonary tuberculosis, where interruption of pregnancy is to be combined with sterilization of the patient, this will prove an operation of the greatest possible value.

Hebosteotomy.

Opinion seems divided as to the scope of this operation. In Graz, where the clinic is about the same size as in Montreal, they had had no experience with it. In the Chrobak clinic, one of the assistants told me that in two years there had been positive indications for the operation in four of seven thousand cases. On the other hand, in the Schauta clinic, with similar material, they average one hebosteotomy in two weeks, and Dr. Burger, who was most cordial in showing the inner workings of his department, demonstrated to me a patient in apparently perfect condition two weeks after the operation.

As with all disputed operations, the results obtained seem to vary with the technique employed. Nearly all the ill results have been due to excessive lacerations of soft parts attributable to the application of forceps, or more particularly version. It is now agreed that the proper procedure is to divide the pubic bone and then allow the labour to proceed naturally. This labour differs in no way from ordinary labour where the pelvis is normal, and there is no increased pain from the osteotomy.

In the Prag clinic, Professor Kleinhans demonstrated to me a patient on whom the operation had been twice performed within a period of a little more than a year, in each instance with most satisfactory results. The Röntgen picture of the pelvis showed excellent bony union in each

of the pubic bones, and at the same time proved conclusively that one such operation does not permanently enlarge the pelvis.

The operation, as performed by Professor Doederlein, is no more subcutaneous than is that with which we are already familiar. There is a difference, however, in after treatment, in that the patient is allowed to lie in bed without special support to the pelvis, which, of course, allows the bones to separate and tends to permanent enlargement of the pelvis.

HERBERT M. LITTLE.

Berlin, January, 1908.

Reviews and Notices of Books.

DISEASES OF THE HEART. By PROF. TH. VON JURGENSEN, of Tubingen; PROF. DR. L. KREHL, of Griefswald; and PROF. DR. L. VON SCHROTTER, of Vienna. Edited, with additions, by George Dock, M.D., Professor of Medicine, University of Michigan. Octavo of 848 pages, illustrated. Philadelphia and London; W. B. Saunders Company, 1908. Cloth, $5.00 net; half morocco, $6.00 net. Canadian agents: J. A. Carveth & Co., Ltd., Toronto. Ont.

The present volume is a welcome addition to the translated series of the Nothnagel system; it is a well indexed book of 850 pages, uniform with the other numbers of the set. The American editor's aim has been, as he says, not to interfere with the native flavour of the work, and he has been sparing of change, and not very lavish of additions; knowing Professor Dock's familiarity with the subject in all its details, we appreciate the motive that has led him thus to keep himself in the background. The first part of the work is Professor von Jürgenson's article upon Insufficiency (weakness) of the Heart. This is a well and favourably known monograph, as is also the part which follows, dealing with Endocarditis. One sees in passing a human note that is much oftener found in German than in English works. In speaking of the "one-organ-specialists," von Jürgenson says, "The same is true of the universal specialists—Pastor Kneipp & Co.—who fill God's acre more than they cultivate God's vineyard." The Schott treatments meet with commendation, and ether takes precedence of all other diffusible heart stimulants.

In the part treating of endocarditis there is a marked abstinence from editorial addition. Professor Dock emphasizes the blood culture in obscure infective endocarditis and indicates the usefulness of the op-

sonin method in such cases. In the discussion of the valvular lesions, the editor adds the short paragraph on Tricuspid Stenosis.

Professor Krehl, then of Griefswald, writes the Diseases of the Myocardium. In a short dissertation on X-rays the editor points out that too much stress may be laid on the value of knowledge of the size of the heart at a fluoroscopic examination: the approximate size, as revealed by the older methods, and an appreciation of changes therein, are even more valuable because more constantly obtainable. Comment upon cardiac rhythm might be fuller, in view of the importance of the subject to-day; although fuller information is given elsewhere in the discussion of heart-block. The discussion of the estimation of pulse tension is good. A bit of Teutonic sarcasm is this: "if this were an up-to-date work, a complete description of the shape and various kinds of water-cushions, pillows and arm-chairs, with a few illustrations would now be in order," and it must be confessed a palpable hit.

The section on Diseases of the Pericardium is written by Professor von Schrötter, and is small compared with the other parts. A good addition is made in view of recent work upon paracentesis of the pericardium. We can justly say that, throughout, the work of the authors has been excellently dealt with by Professor Dock.

Osler's Modern Medicine; Modern Medicine, Its Theory and Practice in Original Contributions by American and Foreign Authors. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England, assisted by Thomas McCrae, M.D., Associate Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University, Baltimore. Vol. III, Infectious Diseases (continued)—Diseases of the Respiratory Tract. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1907.

The third volume of Osler's Modern Medicine follows the second with a commendable expedition, considering the labour involved in the production of so large a work. It is divided into two parts, of which the first continues the Infectious Diseases, and the second deals with Diseases of the Respiratory tract: this volume, uniform with the others, consists, with its index, of 960 pages.

Col. David Bruce comes fresh from the Mediterranean Fever Commission to the subject of Malta Fever, and considering that they have recently discovered the part played by the Malta goats in its spread, no one is better able to speak thereon, even if the author had not himself been the discoverer of the germ.

Maximilian Herzog brings his Philippine experience to bear upon the subject of Beri-beri. Anthrax, Rabies, and Glanders are dealt with by

Dr. Ravenel; we are disappointed not to find in the last-named article, any reference to so large a series as that compiled by Robins in the Royal Victoria Hospital Studies. The above mentioned five articles, with Dr. J. M. Anders' on Tetanus are thoroughly well done. Rufus Cole's article upon Gonococcus Infections is a very full, in fact, an absolutely complete statement of the subject. Gonococcus Infections is the correct title for such an article, for it is necessary to enforce the real nature of a disease that was considered for long time as local. Dr. Isadore Dyers' article on Leprosy is well illustrated, and is interesting.

The history and etiology of Tuberculosis are dealt with by Dr. E. R. Baldwin, of Saranac, who has set out most readably the large accumulation of historic fact connected with the disease; the most difficult part of the work is to set forth the prevailing or the most reasonable view of the many vexed questions connected with the tubercle bacillus, its different strains, its culture and its morphological characteristics. We are glad to see the various kinds of tuberculin tabulated and simply stated in a way which is readily accessible to the ordinary reader, as well as a statement of the physiological action. Finally, the vexed question of paths of infection is dealt with in a way that corresponds with the views of the reviewer, at least, and we venture to think, with the greatest weight of evidence.

Prof. W. G. MacCallum, of Johns Hopkins, writes the chapter upon the Pathology of Tuberculosis; it is clear, well-collected, and well-arranged, systems being dealt with in definite order; the entire article is written with that touch of dogmatism which becomes well a system article.

We are not surprised that Dr. Lawrason Brown has given us a first-class series of articles upon tuberculosis; he has literature at his fingers' ends, and a deep enthusiasm and long practice to depend upon, and the result is good. The symptoms and signs are dealt with at length, and with much accuracy. Does Dr. Brown mean that a woman with large or lax mammæ ought to be percussed in the *prone* position? We note, too, that such a term as myoidema requires definition for most readers. We do not think the chapter on modes of onset very valuable, save to indicate that any sick person ought to have the lungs carefully examined. We make these statements with an apology, considering the exceptional standard of the article. Upon prophylaxis and treatment Dr. Brown is upon ground with which he is to the last degree familiar, and his work is full of practical experience and most thorough.

Syphilis, treated by Dr. Wm. Osler and Dr. Thomas Churchman, is, we had almost said, a pleasure to read. There is much of the individu-

ality of the senior author in it; the spirochæte is admitted as the all-but-proven cause of the disease, and the strictly medical side of the article needs no commendation. We can go further and point out that a most dispassionate argument of the duty of the state with regard to the prophylaxis of syphilis is given; not with any definite result, it is true, as far as the state is concerned; no one man, no dozen commissions and no half-hundred states *can* settle that question. Dr. Osler lays the greatest stress upon education in all its forms, and points out the effect that "para-syphilitic" efforts for advance will have, namely, how much can be done by meeting the drink problem, and by bettering social conditions, for the worse these are, the greater chance for spreading has the parallel evil of syphilis.

Dr. Thomas R. Boggs has a difficult set of problems before him in Febricula, Glandular fever, Infectious Jaundice, Miliary fever, Rocky Mountain Spotted fever, Psittacosis, Foot and Mouth Disease, and Milk-sickness. With a wide use of the literature, a satisfactory presentment is given.

Part II of the volume, dealing with the respiratory tract, is prefaced by an excellent article upon the Mechanics of Respiration, by Thomas R. Brown. The idea of such an introduction is an excellent one, for it gives the reader a chance to review, in the light of modern physiology, many facts that he is apt to have overlooked since his early medical days, when he sought them perforce in his text-book of physiology: especially valuable is it, in that it deals largely with the physiology of pathological states of respiration. Dr. Brown has done his part admirably.

Diseases of the Nasopharynx, Pharynx and Tonsils are taken up by Dr. Francis R. Packard, of Philadelphia, and those of the Larynx, by Dr. H. S. Birkett, of Montreal. Both are accurate, condensed and incisive, for both authors are thoroughly conversant with the subject. W. P. Dunbar very properly is chosen to contribute the article on Hay Fever, and though he may be classed as an enthusiast, his article is moderate and reasonable; and Pollantin may be granted an undoubted first place in the treatment of the disease. Dr. Alexander McPhedran contributes a really excellent article on the Diseases of the Bronchi. If the author is to be specially commended for any part, it is for the completeness of the paragraphs devoted to treatment, which seem in every way to be thorough. Foreign bodies receive more mention than is usual in purely medical treatises.

H. A. Hare, of Philadelphia, deals with the diseases of the lungs, and Frederick T. Lord, of Boston, with those of the pleura; Professor

James, of New York, contributes a short article on Pneumothorax, and Dr. Christian, of Boston, one on the diseases of the mediastinum. To say that these are all good makes a review monotonous by reason of praise, but it is necessary. The volume is first-class.

Hygiene and Public Health. By Louis C. Parkes, M.D., D.P.H., and Henry R. Kenwood, M.D., D.P.H. Third edition, with illustrations. H. K. Lewis, 136 Gower Street, London.

The third edition of this well known work will be much appreciated by the student in Public Health. The whole work has been carefully revised, many parts rewritten, and several chapters dealing with fresh material have been added. With all this, by a process of careful pruning the work is not increased in size, in fact, by a slight enlargement of the page area the thickness of the volume, as compared with former editions, has been diminished and is therefore handier. The chief addition is the chapter on school hygiene, which is decidedly an attraction in these days when school hygiene is looming up so largely on the horizon. The subjects dealt with under this heading are so important that one almost regrets the very condensed form in which the different items are couched. However, nothing has been omitted and the rules governing school inspection are very commendable and worthy of all attention. The section dealing with Refuse Disposal (including sewage purification) has been brought up-to-date, setting forth in a precise fashion, stripped of all controversial matter, the latest ideas and experiences in this respect, especially with regard to sewage plants. Those chapters dealing with water, soil, and air, have undergone a slight cutting down and several items added, chiefly dealing with the bacteriological data necessary to adequately set forth the present day views upon these subjects. On the whole, the present volume is to be recommended even more strongly than the previous editions, if this be possible, for the work of these two authors has gained a reputation for itself which it is difficult to surpass.

Ophthalmia Neonatorum, with especial reference to its causation and prevention. By Sidney Stevenson, M.B., C.M., Publishers, George Pullman, Ophthalmic Institute, Thayer Street, London.

The author takes up the subject under the following heads: Introduction, ætiology, symptoms, histology, diagnosis, prognosis, prevention, treatment, general conclusions. After defining ophthalmia neonatorum, the author states that this malady has been recognised since the dawn of medicine, Soranus and Ætius having referred to it. The first part of the inquiry is then taken up, namely the prevalence of Ophthal-

mia Neonatorum. A large number of statistics, derived from many sources, are given. The second chapter on ætiology is exceedingly interesting. The author tells of the many different causes ophthalmia neonatorum has been attributed to, such as exposure to cold air, the intrusion of soap, a scrofulous constitution, or a disordered state of the bowels. It is interesting to note that, in 1750, Quellmatz insisted upon the recognition of the connection between leucorrhœa in the mother and ophthalmia neonatorum in the baby. But in 1806 Edmonston stated that ophthalmia neonatorum was associated with a loaded and oppressive state of the bowels. In 1854, William MacKenzie stated the disease in its worst form was the result of the application of gonorrhœal matter during the passage of the head through the vagina. In 1879, Neisser announced his discovery of the gonococcus in the pus from the eyes of ophthalmic patients, both infants and adults. The proportion of cases due to the gonococcus is then taken up followed by descriptions of ophthalmia neonatorum due to such factors as the pneumococcus, bacillus coli, Koch-Weeks bacillus, bacillus diphtheriæ, influenza and pseudo-influenza bacilli, etc., etc. On page 59, commenting on influenza and pseudo-influenza bacillus the author says: "So far as I am enabled to judge from the description given these organisms appear to be identical with one another and also with the Koch-Weeks bacillus." Here he is wrong. Koch-Weeks and B. Influenzæ are entirely different micro-organisms which cultivation of each on human hæmoglobin agar will readily demonstrate. There has been entirely too much differentiation of conjunctival organisms by morphology, the inaccuracy of which method need not be commented upon. Under prognosis is considered the factors upon which depend any case,—nutrition of the body, stage of the disease, the condition of the cornea, the bacteriological cause. The chapter on prevention deals with Credi's work. His figures speak for themselves. With his treatment in three years of 1,160 children born alive, in only one case was there ophthalmia neonatorum. On treatment, silver nitrate and the synthetic silver salts are discussed. The author favours freshly prepared argyrol in 25 per cent. solution.

Stevenson in his attractive book has covered this subject systematically and thoroughly. Each division is taken up historically and the opinions of years ago compared with those of to-day. The different summaries are to be commended. To those desirous of becoming thoroughly familiar with ophthalmia neonatorum and with the literature of this subject we believe this work is the most comprehensive of any English monograph yet written on this important subject. The book is well bound, the paper and printing are of superior quality.

G.H.M.

THE COMMONER DISEASES OF THE EYE. With 280 Illustrations (many original) and 8 Colored Plates, by CASEY A. WOOD, M.D., C.M., D.C.L., and THOMAS A. WOODRUFF, M.D., C.M., L.R.C.P. (London), W. T. Keener & Co. Price, $2.50 net.

The appearance of the third edition of Wood and Woodruff's little work on the Commoner Diseases of the Eye will be welcomed by many of the general Practitioners of Medicine, who have not the time to consult the larger text-books on ophthalmology. The book has been considerably increased in size and the pathology, histology and gross anatomy of the orbit and its contents have been described. In addition a very useful chapter on the relationship of diseases of the nose and adjoining cavities to the diseases of the eye has been written. The importance of this relationship has been overlooked to a great extent in previous text-books. The illustrations are numerous and as a rule good and the book fulfils all that is claimed for it in the preface by the writers. It is strongly to be recommended to beginners in the study of ophthalmology.

Medical News.

MONTREAL GENERAL HOSPITAL.

The annual meeting of the corporation and board of governors of the Montreal General Hospital, was held February 18th, when the election of officers resulted as follows:—

President—Mr. James Crathern; Vice-president—Mr. H. Stikeman; Treasurer—Mr. F. W. Evans; Secretary—Dr. F. G. Finley. Committee of management—Dr. F. J. Shepherd, Messrs. David Morrice, J. B. Learmont, A. W. Hooper, Hugh Paton, J. Reid Wilson, Bartlett McLennan, Abner Kingman, Hugh Graham, Sir Montagu Allan, with the president, vice-president and treasurer.

Physicians—W. A. Molson, A. D. Blackader, F. G. Finley, H. A. Lafleur. Surgeons—F. J. Shepherd, G. E. Armstrong, J. A. Hutchison, J. M. Elder. Out-patient physicians—G. Gordon Campbell, S. Ridley MacKenzie, C. A. Peters, A. H. Gordon, C. P. Howard, A. G. Nicholls, Kenneth Cameron, E. M. von Eberts, A. T. Bazin, A. R. Pennoyer, W. L. Barlow, R. P. Campbell. Oculist and aurist—G. H. Mathewson; assistant oculist and aurist—S. H. McKee. Gynæcologist—F. A. L. Lockhart; assistant gynæcologist—H. M. Little. Laryngologist—H. D. Hamilton; assistant laryngologist—R. H. Craig. Neurologist—D. A. Shirres.

A committee was appointed on credentials of applicants for the positions on the medical board, in accordance with by-laws, as follows: Chairman of the committee of management, Mr. James Crathern, *ex-officio*; representing the committee of management, Messrs. H. Stikeman, Hugh Paton, J. B. Learmont; representing the medical board, Drs. F. J. Shepherd and F. G. Finley; representing the governors, Messrs. Robert Reford, E. B. Greenshields and George E. Drummond.

The president, Mr. James Crathern, submitted the report of the committee of management which contained the following statement:

"Looking back at the work of the hospital, we find in 1857 the number of indoor patients that received attendance in the wards of the hospital to be 966, and the outdoor, 4,953; or a total of 5,919, as against 54,187 last year. The income was $12,230, and the expenditure, $12,510; or $280 in excess of income. During the past fifty years 100,121 in-door patients passed through the wards of the hospital, and the out-door patients which received treatment numbered 1,094,222; a total of 1,194,343."

The report further stated that Mr. Bartlett McLennan has been elected to fill the vacancy on the committee caused by the much regretted resignation of Mr. S. H. Ewing. The addition to the Nurses' Home had been completed at a cost of $16,623, and the fireproof galleries between the two surgical wards at a cost of $11,626. The income from all sources for the past year amounted to $105,907, and the expediture to $124,738, being an expenditure of $19,731 over income. The number of patients who passed through the wards of the hospital during 1907, is 3,347; out-door patients numbered 50,840, being 3,858 in excess of 1906. The total number of indoor and outdoor patients for the year was 54,187. Since the training-school was established, 219 nurses have graduated, of which 21 graduated in 1907. Fifty-five new life governors were added during the year and sixteen governors died.

NOTRE DAME HOSPITAL.

The twenty-seventh annual meeting of the Notre Dame Hospital was held February 18th. The report of the Superintendent, Dr. Harwood, showed that the hospital had treated 2,366 patients during the past year; of this number 787 entered the medical department, and 984 in the surgical. The treatment of those patients represented a total of 40,431 days. There were 791 ambulance runs for accidents, 455 for private patients, and 186 false alarms. At the St. Paul's Hospital there had been 70 cases of diphtheria, 68 cases of scarlatina, 5 cases

of scarlatina and diphtheria, 68 cases of measles and scarlatina, and four cases of erysipelas. Out of 261 sick children, 218 were sent home cured, 16 died, and 27 were still at the hospital.

The treasurer read his report, which gave the expenses at Notre Dame Hospital for the past year as being $60,850, while the receipts were $51.605, showing a deficit of $9,245. The report also showed the expenditure of St. Paul's Hospital as being $38,382, with receipts of $20,790, or a deficit of $17,591. During the past year each patient cost $1.50 per day, against $1.13 the previous year.

CONGRESS OF TUBERCULOSIS.

The International Congress on Tuberculosis at Washington, in September, 1908, will be an important event. This Congress meets once in three years, but it has never met in America.

The Congress will carry on, for three weeks, public discussions of the tuberculosis problem, led by the most important authorities on this subject. Official delegates will be present from nearly all civilized countries. There will be a course of special lectures to which all members of the Congress and the general public are invited.

The Congress will be divided into seven sections, giving ample scope for participation of both scientific and lay members. There will be a Tuberculosis Exposition, and Clinics and Demonstrations, giving medical and lay delegates object lessons on the causes and prevention of tuberculosis.

There will be very valuable publications, of which the Transactions will be the most important. The transactions of the last Congress are published in three volumes. The proceedings of this Congress will require four volumes. These are free to all members of the Congress, who have paid their membership fee ($5.00).

There are two classes of members: Active Members, who pay a fee of $5.00; and Associate Members, who pay a fee of $2.00, and have all the privileges of membership, except the right to vote and to receive the printed volumes. The Secretary-General may be addressed at 714 Colorado Bldg., Washington.

CANADIAN MEDICAL ASSOCIATION.

The forty-first annual meeting of the Canadian Medical Association will be held in Ottawa on the 9th, 10th and 11th of June, 1908, under the presidency of Dr. Fred. Montizambert, Director-General of Public

Health. Members and others who intend to take part in discussions or to contribute papers, are asked to inform the General Secretary, Dr. George Elliott, 203 Beverley Street, Toronto.

The annual meeting of the Oxford Co. Medical Association was held in Ingersoll, January 24th. The following officers were elected:—President—Dr. Rogers, Ingersoll; Vice-president—Dr. Green, Embro; Secretary—Dr. Brodie, Woodstock; Treasurer—Dr. Neil, Ingersoll.

Dr. Sprague, a well-known practitioner of Belleville, dropped dead in the office of the City Clerk, January 25th. Heart disease was the cause of death.

Dr. Henry Going died at London Ontario, January 28th. Dr. Going was 91 years of age, and he practiced in London for over sixty years.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

PROF. DR. KUSTER, Charlottenburg. "Diagnosis and Therapeutics of Tumours of the Kidney." *Zeitschrift f. Urologie,* Bd. II, Hf. I.

In the diagnosis of renal tumours, three groups of symptoms and signs may present themselves.

1st. Those dealing with the presence of a tumour, of which swelling, pain and urinary changes, especially sudden, irregular hæmaturia are the most important.

2nd. Those which deal with the variety of tumour present.

3rd. Those which aid us in prognosis and determine the possibility of removal or otherwise.

Under the second group Kuster gives his own statistics, which include 89 cases of kidney tumour; 58 of these were hypernephroma, or as he prefers to call them, epinephroids. Twelve of the 89 cases were not properly recorded, so that 75 per cent. of his kidney tumours were epinephroid. The remaining 25 per cent. included cancer, sarcoma and mixed tumours of children.

Those signs which are to aid us in our prognosis are, first, the fixity of the tumour, and, secondly, the findings in the separated urines. While

Kapsammer pins his faith to the early secretion of sugar after phlorizin injection, Kuster would go further, and in cases where the second kidney was doubtfully healthy, would make a double exploratory incision previous to nephrectomy.

He prefers lumbar anæsthesia with novokaïn, and has a good word to say for the transperitoneal route in renal operations, which permits of inspection of the liver, thus revealing any metastases, and at the same time allows the radical removal of glands, the fatty capsule and the adrenal, which is necessary in malignant cases. Early diagnosis is thus of greatest importance, and once diagnosed, early removal is indicated. Only in those cases where a small nodule is present in the second kidney should partial excision be considered.

W. J. McCardie, B.A., M.B., B.C., Anæsthetist to the General, Dental, and Ear and Throat Hospitals, Edinburgh. "Status Lyphaticus in Relation to General Anæsthesia." *British Med. Jour.*, Jan. 25, 1908.

The condition known as Status Lymphaticus, though, perhaps, described as early as 1614, by Plater, has never received much attentiton in the medical literature of England, though since the work of Paltauf in 1890, it has been frequently the subject of discussion in American (including Canadian) and German periodicals. To Paltauf belongs the credit of recognizing this condition as an association, if not the cause, of sudden death in anæsthesia and other conditions. To his description, which includes enlargement of the tonsils, of the lymphatic gland system, of the follicles at the base of the tongue, of the spleen and of the thymus gland, with or without some narrowing of the aorta, but little can be added. It is otherwise, however, with the number of deaths which can be collected as occurring under this state, and it is with the object of adding some further statistics to this disease and of pointing out its relationship to anæsthesia that the author has undertaken this work.

The subjects of the status, also called "lymphatisen," are unusually subject to infectious diseases, to death from shock and fright, and to death from anæsthesia. Even comparatively slight injuries may in them end fatally. In the children's clinic at Gratz the records show that in every chloroform fatality during the last twenty years the status was present. The earliest case reported in England was in 1905, and the second appears in this number of the *British Medical Journal*. The case, reported by Dr. MacTaggart in the Montreal Medical Journal in 1903, in which sudden death occurred after 1-12 gr. morphine, is mentioned.

As the combined result of anæsthesia and lymphaticus thirty deaths have been collected by the author; seventeen from chloroform, six from ether, and five from a mixture of both. Two cases have resulted from local anæsthesia, in one of which Schleich's infiltration was used.

The average age of sudden death in thirty-five collected cases was sixteen years, the youngest being six months, the oldest fifty-five years. Both sexes were equally affected.

The author then adds seven cases of death during, or immediately subsequent to anæsthesia, six of which he regards as being influenced by the status lymphaticus.

A diagnosis of these cases may be made during life. Vienna clinicians hold that they can recognize it by the pasty complexion, an increase in subcutaneous fat, signs of rickets or scrofula, enlarged superficial glands, enlarged tonsils and adenoids, and a palpable spleen. To these might be added a possible enlargement of the thyroid. The thymus is always enlarged.

Chloroform in such cases is dangerous, as is evidenced by the large number of deaths resulting. Ether, and ether by the open method, is safest. Once respiratory and cardiac failure have occurred nothing can be done, hence our only possible safeguard is to recognize such cases previous to operation.

Dr. Ernst Frey, Assistant in the Pharmacological Institute, Jena. "The Retarding of Water Diuresis Through Narcosis." *Arch. f. d. ges. Physiol.*, '07, Bd. 120.

These physiological experiments are interesting in demonstrating that the use of morphine, chloralhydrate, and ether retard, under all conditions, the diuresis of water, whereas salt is excreted, a fact which tends to bear out facts observed as to the small amount of urine excreted by patients under anæsthesia. The experiments were made on animals, who were anæsthetized and narcotized, and into whose stomach, bowels or peritoneal cavities, water, beer, sugar solution, etc., were introduced. Water absorption from the intestines took place readily enough, but no excretion from the kidneys occurred.

Arthur E. Barker, F.R.C.S., Professor of Surgery at University College Hospital, etc. "A Second Report on Clinical Experiences with Spinal Analgesia, with a second series of 100 cases." *British Medical Journal*, Feb. 1st., 1908.

Among English speaking surgeons, no one can speak with quite so much authority on lumbar anæsthesia as the author of this paper. In March, of 1907, Barker published his first series of 100 cases, and now

follows this by a second series. It is not because the author has been unusually successful, nor that his experience in these matters is larger than that of many continental writers who have busied themselves with this subject, that we wish to draw attention to the work done at University College Hospital. It is rather because the writer has worked out his own theory and practice along lines of his own. The essential point is that Barker works with a solution of stovaïn and glucose in water, with a specific gravity of 1.0230, whereas the specific gravity of the cerebro-spinal fluid is 1.0070.

Barker showed in his first paper that not only experimentally in vitro, but also in vivo, it was possible to determine to what part of the spinal canal this denser fluid should sink and consequently what nerve-roots should be influenced, and what areas of anæsthesia result. This second contribution supports these contentions and is most convincing. In one other point does Barker's work differ from that of continental writers, notably Dönitz, who has, perhaps, done most work on this subject at the Bonn Clinic, that is in the absence of accessory drugs; neither adrenalin nor preparatory injections of scopolamine or morphine are used, indeed, we are specially warned against their use.

The whole piece of work goes to show that with sufficient experience spinal analgesia is a highly satisfactory type of anæsthesia, both to patient and surgeon, though even Barker would not claim that its field of usefulness is any but a limited one.

Dr. Ernst Holzbach, Assistenzarzt-Tubingen. "Eighty Lumbar Anæsthesias Without a Failure." *Munch. Med. Woch.*, 21st Jan., 1908.

This is a fair type of many papers published on the subject at the present time. One and a half and half an hour before operation 1 cg. morphine and 3 dmg. scopolamine is given hypodermically. Then by lumbar puncture .04 to .08 g. stovain, and .0001 suprarenin. Under this, forty-six laparotomies, seven vaginal coeliotomies and twenty-seven other operations (where the peritoneum was not opened) were performed. Anæsthesia did not last longer than 60 minutes, and in fourteen cases ether was required towards the end of operation. R. P. C.

OPHTHALMOLOGY.

UNDER THE CHARGE OF DRS. STIRLING, BYERS, MCKEE, MATHEWSON, TOOKE.

Robert Scott Lamb, M.D. "Angiosclerosis of the Eye." *Ophthalmology*, January, 1908.

In this article Dr. Lamb draws attention to the importance of the early recognition of vascular changes in the eye. With the slightest

disorganization of the vessel wall there is transudation into the surrounding tissues in the retina, this causes œdema which if limited to the nerve layer is easily remedied, but if the outer layer (nuclear) be affected complete recovery cannot take place; the inflammation may progress beyond this stage with the exudation of plasma and polynuclear leucocytes leading to the discoloration of the vessel walls which may eventually appear thickened, and white. In the smaller vessels the endothelium proliferates and there is increased connective tissue formation. These changes occur first in the retina, next in the chorio-capillaris and then in the outer layers and sclera.

The symptoms are tiring of the muscles of the eye, photopsiæ, slight or prolonged blindness or blurred vision. The objective symptoms are conjunctivitis, partial ptosis, nystagmus, blepharospasm. In the fundus the disc and retina appear hazy, the vessels have apparently nodes and are tortuous; white lines or bands are seen along the larger vessels, arterial pulsation and perhaps spasm, hemorrhages into the retina and choroid occur, chorio-retinitis or neuro-retinitis are seen.

The fields are contracted proportionately. If discovered early the treatment in these cases is satisfactory. The treatment consists in correcting any disturbance of digestion by diet, cathartics, etc., regulating the blood pressure, restriction of the intake of fluids and reducing the quantity of salt ingested, administration of nitrites and iodides, pilocarpin baths and packs, strychnine or nux vomica. Locally the use of hot moist applications of salt or boric acid and of subconjunctival injections and in some cases dionin.

The results of angiosclerosis of the eye can be retinitis, choroiditis, cataract, glaucoma, embolism or thrombosis of the central vessels of the retina.

H. V. Wurdemann, M.D. "The Treatment of Partial Optic and Retinal Atrophy by Electricity and Massage." *Ophthalmology*, January, 1908.

This is the second article from this able observer's pen. He claims improvement, only in partial primary optic nerve atrophy and consecutive to optic neuritis and to chronic retinitis. By this treatment the nutrition of the nerve is improved, the discs become more normal, visual acuity and the fields are greatly increased. He uses in these cases a combination of the high tension faradic current and the galvanic current of from five to ten milliamperes, the duration of treatment varying from three to five minutes every day or every other day. The treatment has to be continued for months; the negative pole

is applied over the eye and the positive to the nucha. The contra-indications to the use of electricity are acute inflammations of the eye. With the idea of improving the nutrition of the nerve, he also treats these cases with massage using a massage cup connected with a Victor transformer and Pynchon pump attachment: the vibrations should not exceed 150 per minute and better results were frequently obtained with a lower number. The contra-indications for the use of the massage are the same as those for the use of the electric current. Wurdemann reports a number cases in which the results are certainly very marked but he is perfectly candid in acknowledging his failures. Cases of tabetic atrophy are among those which fail to record any improvement and he concludes that improvement or cessation of the loss of vision can only be hoped for in partial primary atrophy or that following papillitis. Some improvement seems to be gained in cases of retinitis pigmentosa and in toxic amblyopia. J. W. S.

Society Proceedings.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

(Continued from last issue.)

R. P. Campbell, M.D.:—In reference to the question of treatment it is difficult to know what the future will decide as best in these cases; myself, if I had a kidney which showed a focus even as small as the smallest here, I would have that kidney removed. One must admit, however, that this does seem a very radical procedure, where so small a lesion is present. Nevertheless, there is always the danger, not only that the bladder may become involved, but that infection of other organs through the blood and lymph may occur. The question of partial nephrectomy does not seem to help us: in the cases where it might promise us something the difficulty is to find the focus of disease. In one case it was so concealed in a single calyx that it was only after careful pathological dissection that it was found, though it was severe and very active.

With regard to the question of operation hastening a generalized disease, I feel that in one case it may have had this effect, nevertheless, the only reply I would make is that the longer we leave the local lesion the more likely is the shock of operation to cause a generalized disease and the earlier the removal the less likely is this to occur.

The finding of tubercle bacilli on one side does not necessarily mean that the kidney on that side is affected. It is said that bacilli may be secreted by the kidney or the ureter may be affected. The functional

activity of the kidney will give us valuable information in cases where any such doubts may arise.

As to the question of the healing of bladder ulceration, cystoscopy, subsequent to nephrectomy, has been carried out in several cases where ulceration had been present. In two out of three cases, which at this moment I can recall, the ulcer had disappeared, in the remaining case it was much smaller.

The quantity of urine secreted by the bad side has frequently been diminished, in some cases is extremely small. In others, however, the amount of water has been increased and secretion somewhat more rapid on the affected side.

As to the freezing point of the urines this has been determined, wherever practicable, and I feel that it does give us valuable information and any additional information we can get in these cases is not to be overlooked.

VINCENT'S ANGINA.

A. H. Gordon, M.D.:—Read the report of this case.

CASE ILLUSTRATING SEMI-ERECT POSTURE IN PERITONITIS.

A. Lapthorn Smith, M.D.:—Read the report of this case.

The sixth regular meeting of the Society was held Friday, December 20th, 1907, Dr. Wesley Mills, President, in the Chair.

HÆMORRHAGE FROM GASTRIC ULCER.

Geo. E. Armstrong, M.D. Dr. Armstrong reported the case of a male, aged 47, who gave a long history of recurring hæmorrhages from a gastric ulcer. Twenty years ago, when in apparent health, he passed a large quantity of clotted blood per rectum, and fainted from weakness. At that time there was no vomiting of blood. No further hæmorrhage occurred for a year or two. During the succeeding five years he had two or three similar attacks, although the blood lost was in much smaller quantity. During this time there was no pain or digestive disturbance preceding or associated with the attacks of hæmorrhage. Then followed a period of fifteen years during which there was no hæmorrhage, and during which time he seemed to be in comparatively good health. On Thursday, the 7th of November last, he vomited a little altered blood, and the next day after dinner he vomited nearly a pint of blood. In this case the blood was not much altered, distinctly dark red and clotted. There was some abdominal pain. On the following day he was quite well, but on Sunday he

passed quite a large amount of blood, black and tarry in character. The next day he was admitted to the Montreal General Hospital. On Tuesday, at 5 p.m., he vomited a pint of red blood, which left him pretty weak and blanched and with a rapid pulse. At 8 o'clock that evening he again vomited what measured two pints of blood, which left him in an extremely critical condition with a pulse between 160 and 170, and with difficulty counted at the wrist.

I saw him afterwards, and it was extremely difficult to decide what course of treatment to adopt. It seemed almost certain that if any operative measures were attempted he would die on the table, and equally certain that, if left to himself, another hæmorrhage would prove fatal. I finally decided to attempt to arrest the hæmorrhage by finding the bleeding point and secure it, as this seemed really the only chance he had for his life. As soon as the stomach was brought into view, quite a large mass of cicatricial tissue was visible and palpable on the anterior wall of the stomach, three inches from the pylorus and just at the lesser curvature. I opened the stomach and from within my fingers entered a cup-shaped cavity about the size of a child's tea-cup, the neck of which was constricted and admitted the finger with difficulty. At the bottom of the cavity blood was seen oozing from a vessel large enough to admit the end of a small silver probe. The depth of the vessel, the mass of cicatricial tissue around it, and the hard base of the ulcer made it very difficult to close; I, therefore, very quickly excised the ulcer and closed the opening. The man made a perfect, quick and smooth recovery and left the hospital quite well, having gained in weight and colour and in strength. I am inclined to think that this same ulcer was the seat of the bleeding which occurred twenty years ago, and that it had persisted during all this time, causing but few symptoms until the large vessel was ulcerated through and the serious hæmorrhage occurred. The history does not always indicate the character of the ulcer. I have recently operated in three cases for the control of large gastric hæmorrhages. In two of these the hæmorrhages have come from the bases of hard, indurated ulcers, and in the third, hæmorrhages equally large in amount, and following an equally well-defined history of indigestion and gastric distress apparently coming from a surface half as large as the palm of my hand, the only change being a superficial loss of epithelium and a few sharply defined fissures. Cauterization of this surface was followed by a perfect recovery and no recurrence of the hæmorrhage, although this patient was blanched and had vomited large quantities of blood. In the autopsy records of the Montreal General Hospital are reports of cases having died from gastric

hæmorrhage in which the source of the bleeding could not be found at post mortem, and in which there was no leucocythæmia—no hepatic cirrhosis or dilatation of the œsophageal veins.

The present is the first ulcer that I have excised for hæmorrhage. In all the others I have been able to control the bleeding with some sort of suture, but here with a large vessel and inflammatory tissue round I felt that excision of the ulcer gave the best prospect of success.

F. R. England, M.D.—I would like to ask Dr. Armstrong wnether he thought this was the ulcer which has caused the hæmorrhage in the beginning.

G. E. Armstrong, M.D.—There was no evidence of another ulcer during the hasty examination permissible at the time. The pylorus was free with no evidence of any old narrowing, and the adjacent part of the duodenum was quite soft and moveable, and presented no evidence of old ulceration. I think an ulcer of this kind must have been a long time in forming, and am rather of the opinion that the same ulcer had been present from the first, and that the earlier and later hæmorrhages were from the same source. It is not uncommon to find perforation of the stomach in a man who considers himself in fairly good health. In many cases during the six or twelve months preceding the perforation the stomach has been better than usual.

WANDERING OVARIAN DERMOID.

W. Gardner, M.D.—The true nature of this tumour before operation was a matter of considerable doubt. In situation, size and mobility it reminded me of cases of malignant intestinal disease I have seen. On removal of the tumour its true nature was at once apparent. The next question to solve was how to account for a dermoid tumour wrapped up in folds of the omentum. It is a well known fact, as positively stated by Bland Sutton that dermoids have never been known to arise from any structure or viscus in the abdomen save the ovary. This fact and the further fact that the left ovary was absent from its normal position (there being only the stump of the left ovarian ligament remaining), made the diagnosis clear. A twisted pedicle which had snapped asunder, accounted for the tumour having wandered over to the right side, where the friendly offices of the omentum had kept it nourished. Adhesion of a detached and wandering tumour is, however, not necessary to prevent necrosis. Some years ago I exhibited to the society a fibroid uterine tumour, of the size of a large orange, which was found roaming about in the peritoneal cavity with absolutely no attachment, and yet showing no evidence of necrosis.

W. F. Hamilton, M.D., read this, the paper of the evening.

John McCrae, M.D.—I would like to ask Dr. Hamilton's opinion with regard to the incidence of these cases where artificial food is administered, that is, the relative quality of different kinds of foods. In a statistical report Allenbury's has seemed to show the most cases.

Kenneth Cameron, M.D.—About fifteen years ago, when in charge of the Montreal Foundling Hospital, the late Dr. E. P. Williams and I met with three cases of what we looked upon as infantile scurvy. They presented hæmorrhagic eruptions, enlarged ends of the bones and subconjunctival hæmorrhages, practically a picture of what we now know as infantile scurvy. None of us, at the time, recognized the condition, until I read an article just then published upon the subject, and we came to the conclusion that that was what we had to deal with. The children had been fed entirely upon Nestle's food, and upon changing it and giving them orange juice, all symptoms rapidly improved.

F. J. Shepherd, M.D.—The first case I saw was a good many years ago when sterilized food first came into fashion. I was called in to see a very young child with supposed hip joint disease; it had come on rapidly, and the joint was tender and swollen, slight movement being agony. The nurse directed my attention to the child's gums and immediately it brought to my mind the picture of scurvy in sailors which was often seen in my early student days. I recommended orange juice to be added to the food and in a very few days the child got well.

Dr. Gurd.—About ten years ago I experienced a rather curious method of diagnosing a case of scurvy. I overheard two ladies talking to each other about a third lady's baby, stating how very ill it was and giving the symptoms. I had just received my new edition of Holt and had read the chapter on Infantile Scurvy. I asked two or three questions of the lady about the gums and the painfulness on movement, swelling of the knees, etc., and I decided this was what ailed the child. I called up the family physician who was rather nonplussed by my action in telling him what ailed this infant. However, he invited me to see the child with him, and it proved to be a most beautifully marked case. It had been fed on Nestle's food, and this was immediately changed and orange juice given. That very night the child was more comfortable than it had been for three months. This case had been seen by one of our good physicians in consultation. The diagnosis made at the time was "an unusual form of rheumatism."

W. F. Hamilton, M.D.—The discussion on this paper has proved what I felt to be true, that infantile scurvy is a rather common condition. Indeed, I believe it is comparatively common and many cases are regarded as rheumatism. I purposely left out the matter of

treatment as I know nothing about the chemistry of the condition. In this child's case the mother said the baby could not take cow's milk, but cow's milk in dilute form was given and orange juice as well, and in a few days she got better. What Allenbury's food contains or does not contain I do not know, nor can I state that the incidence of these cases is more frequent where this food is administered than with others, but I always recommend it for a time to children who cannot take cow's milk, and have never seen any bad results.

RIB FRACTURED WHILE COUGHING.

D. F. Gurd, M.D.—On the 25th of November last I was called to see Mr. L., who was said to have broken something in his side. I found him suffering great agony, especially when he coughed, which he had to do frequently, owing to an attack of subacute bronchitis with free expectoration. It was very evident that a rib had been broken, as in inspiration preparatory to coughing one could hear the ends rubbing against each other even when standing two or three feet away—and with the fingers over the part could feel them being displaced.

The seventh rib on the left side was broken on a line with the anterior axillary border.

The man is 43 years old, very large, 6 feet 2 inches in height, and weighs over 250 lbs. He used to be very muscular, was a boxer and gymnast, but of late had put on fat, though is still a very strong, active man. While undressing and in the act of pushing off with his left hand the suspender from shoulders, he was seized with a cough, and immediately he felt something give way in his side accompanied with, and followed by, most severe pain. For a few days he suffered greatly in spite of careful strapping of that side of chest. His bronchitis got perfectly well in about a week when his side gave him very little further pain.

As with "tennis arm" and "rider's cramp," here, we have a bone fractured not so much by an extra muscular effort as by a want of co-ordination of the muscles—that is, a greater strain than usual is put upon a certain muscle or part of a muscle, producing in the case of rider's cramp and tennis arm a tearing away of a portion of a muscle from its attachment, and in this case such a local strain as to break the bones.

Books on surgery remark that ribs may be broken by muscular action during coughing or sneezing, or even parturition, but on making enquiries amongst my surgical friends, I found that none of them had ever seen a case.

J. C. Cameron, M.D.—Dr. Oskar Klotz read the report of this case.

Post mortem:—Body that of a poorly nourished female infant, 43 cm. long. There was general lividity of the body, particularly over the abdomen. External orifices normal. Reddish discoloration of buttocks. There was no petechial rash, nor blotches on the skin.

Head:—Scalp was negative. On removing the scalp, there was found, externally, congestion of the post. halves of the parietal bones and the upper half of the occipital bone, as if the remains of an external hæmatoma. The dura mater showed no change, externally. The vessels of the pia-arachnoid were everywhere injected, but chiefly along the vessels over the base of the brain and the cerebellum and those in the longitudinal sulcus. Following the vessels over the superior surface of the brain were diffuse purulent areas. The pia-arachnoid dipping down into the longitudinal sinus was clear of pus. There were also diffuse purulent tracts following the vessels over the sylvian fissure, and over the temporal lobes: this was quite marked. The base of the brain extending from the optic chiasma back to the cerebellum, also, showed this diffuse purulent inflammation. There was, also, an area of pus between the inferior portion of the cerebellum and the medulla. Middle ears were healthy.

Cord:—On exposure of the cord one could see that the whole of its surface was injected. Stripping up the dura mater this was found to be clear and it was the vessels of the pia that were congested. Diffuse purulent areas were found along the whole length of the cord, chiefly along its sides and posteriorly.

A. D. Acute Purulent Meningitis, (Probably Epidemic). Acute Gastro-Entero-Colitis. Patent F. O.

Notanda:—The case was very interesting in demonstrating an acute meningitis in an infant eight days old. Unfortunately the post-mortem was obtained only on the third day after the death of the child, and the definite bacteriological diagnosis of the infection could not be made out. The presence, however, in the meningeal exudate of Gram-negative diplococci, appearing both intra and extra-cellular, and having the appearance of meningococci is very suggestive of the infection being one of the epidemic variety. Coupled with this is the negative evidence of any pyæmic foci elsewhere, and of the healthy nature of the middle ear cavities.

BACTERIOLOGICAL.

Pus from meninges of Brain:—The direct smear showed many pus cells. There were also many bacteria of different kinds:—Gram negative bacilli. Gram negative diplococci,—a few intra-cellular, and of the appearance of meningococci.

(To be continued.)

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THE ORIGIN OF THE BLOOD CELLS: A REVIEW OF THE LITERATURE.

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In discussing the embryological and post-natal origin of the blood cells we are confronted with a question, which, although the literature is most extensive, leads us as yet to no absolute conclusion. Nevertheless, there have been many observations recorded which have determined greater and lesser points on the subject, but whose interpretation is not universally accepted in the same light. In collating the literature of this subject, I have been forced to disregard the comparative investigations on the development of the blood on account of the extensive writings thereon.

Red blood cells.—The question of the origin of the blood forces us to distinguish between the primary and secondary blood-forming sites,—that is, between the sites of earliest development of blood cells in the embryo and those locations existing in post-natal life. It is now accepted that the blood cells arise from the mesoderm. At a very early period in the embryo, and long before the heart has commenced to beat, there are developed outside of the embryo, in the area vasculosa, scattered clusters of nucleated cells which early develop the hæmoglobin colour. At first these vessels are laid down as solid strands of cells, which later become hollowed out, and anastomose with other nearby capillary tubes. In these tubes are to be found clusters of cells presenting the hæmoglobin colour, which are still attached to the endothelial walls. Before the heart begins beating, and before the vessels become linked to one another, these tinted cells lie free in a fluid within the vascular tubes. It has been noted that the vasoformative cells show a rapid division of their nuclei without a corresponding division of the protoplasm. Each one of the new nuclei then acquires

a certain amount of cytoplasm about it, so that the mother cell is now represented by a cluster of hæmoglobin containing daughter-cells. These masses of cells have been spoken of as blood islands. As the stages of the development of these early blood cells can be definitely traced from the endothelial lining of the primary vessels there appears little doubt that the early nucleated red blood cells are specialized descendants of endothelial cells. To this view Goette is a strong opponent; he believes that the blood cell has its origin in the yolk, while the endothelial cells arise from mesoderm.

The secondary vascular areas develop within the embryo, and give rise to blood cells from their endothelial lining, in a manner similar to that noted in the extra-embryonic vascular zone. Schaeffer has noted the development of blood corpuscles from the connective tissue cells of the new-born rat. These corpuscles can be distinguished by their decided reddish tinge, while in some the red matter is condensed in the form of globules varying in size from tiny specks to spheroids having the diameter of the blood cell. The connective tissue cells become vacuolated and the blood cells gradually accumulate within the vacuole, until a cavity is formed within the cell, which later communicates with similar spaces in other cells. In this way a capillary network with blood cells within it is developed.

The primitive form of the red blood cell is probably spherical or spheroidal, and the characteristic shape is not assumed until later. In the early stage of development the protoplasm of these cells enlarges for several days, while at the same time there is a progressive diminution in the size of the nucleus. Three types of the red cells can be distinguished during their development: 1, Young cells with very little protoplasm; 2, old cells with much protoplasm and granular nuclei; 3, cells with shrunken nuclei which stain darkly.

Multiplication of the red blood cells by division has been recorded by Remak, Bizzozero and others. The division is indirect and takes place by the formation of nuclear spindles. These divisions occur abundantly in the blood of the chick of 3 to 5 days, and it is safe to assume that the same process is typical for all vertebrates. The number of the red cells is further increased by additions arising directly from the primary vascular areas. The nucleated red cells form the permanent red blood corpuscles in all the vertebrates except the mammals. In mammals, they disappear in embryonic life, or soon after birth. How these cells disappear is not known, though some authors have maintained that they are transformed into the non-nucleated variety.

The blood for a certain time, in embryonic life, is found to contain only the red cells, most of which are nucleated, the leucocytes appear later. In adult life nucleated red cells are normally found only in the blood-forming organs, mainly the bone marrow.

All authors are by no means agreed upon the mode of origin of the non-nucleated red cells in mammals. Schaeffer traces them to differentiation of the protoplasm of the vaso-formative cells. This view correlates the animal blood globules with the plastids of the botanists. Against this view is the contention of Kölliker, that the red globules are derived from nucleated corpuscles which have lost their nuclei. Sanfelice regards the red cells as being derivatives of leucocytes. The white cells are supposed to shrink, lose their nuclei and become charged with hæmoglobin. Still another view is brought forward that the bone marrow produces non-nucleated red corpuscles from certain of its cells.

There seems little doubt that some of the first non-nucleated red cells arise in the vasoformative cells in different parts of the embryo. These cells acquire a reddish tinge, and after a time the substance becomes condensed in the form of globules within the cells and gradually assumes the size and shape of a red blood corpuscle. Some areas of embryonic connective tissue show such cells studded with these globules and forming nests of blood corpuscles or blood islands. The development of the non-nucleated red cells in this manner simulates very much the origin of the nucleated red corpuscles in the early embryo. There is only this difference, that in the intracellular origin of the red cells the nucleus of the mother cells seems to play no part, at least not through mitosis. It may be the nucleus does play a part in contributing hæmoglobin to the developing daughter-cells (Hayem). The intracellular development of red blood corpuscles ceases before birth, although in some animals it may be continued for a few days after birth. Subsequently, therefore, it becomes necessary to seek for some other source of origin of the red blood discs during the remainder of life. As soon as the vessels are definitely found in the embryo, and the vasoformative cells are no longer so active, new sites of blood forming organs develop.

Others have asserted that the lymph glands, and more particularly the thymus give rise to red corpuscles by a metamorphosis of their lymphocytic cells, (Malassez).

Very early in embryonic life the liver, as was pointed out by Kölliker, Neumann and others, becomes a principal seat of blood formation. It has been noted that certain cells, presumably of endothelial origin, about the capillaries of the liver, give off nucleated red cells by a

process of germination, in which the nuclei of the mother cells play some part. The process is quite similar to the production of red cells from the endothelial cells in the area vasculosa. Later on these same cells take part in the production of non-nucleated blood corpuscles by a process of budding.

The origin of the red blood cells in post-natal life is considered by most investigators as a subject quite apart from the embryonic origin. Here it is considered that the vasoformative cells no longer play such an important rôle in producing red blood cells, and that these corpuscles are the offspring of a different tissue. It is pointed out that in the late fœtal and post-natal life, the bone marrow comes into more particular prominence as a blood producing tissue.

It is impossible to dissociate the work that has been done on the origin of the red corpuscles from that dealing with the question of the presence of nuclei in these cells. A number of authors (Klebs, Arndt and Böttcher), held that the mature red cells in mammalia possessed a neuclus, and Stricker even contended that with appropriate stains, these nuclei could be demonstrated. The idea held was that the nucleus and hæmoglobin were bound together and occupied the entire cell. However, the work of Kollman and Brunn proved that these granular bodies were free from nuclein, and, therefore, could not represent nuclei.

In view that the red cells had no morphological homologue among the other tissues, a number of authors (Hayem and Pouchet), claimed that these cells arose sui generis. It is claimed by other writers that the platelets developed into microcytes, and, eventually, by loss of the nuclei, became fully formed red cells.

One of the later theories, which is still held by some, but, nevertheless, denied by others, is that the red cells arise not unlike the development of spores within other cells. The main supporters of this view are Schaffer, Ranvier and Minot. The blood forming cells show changes like the endothelial cells, as Minot noted in the embryo. Numerous small bodies develop in the protoplasm without showing any connexion with the nucleus of the cell, and it is only by the development of hæmoglobin within these granules that they are distinguished from the mother cell. Gradually these granules develop into spherical bodies, attaining the size of the mature red cells, and many of these are seen to completely fill the protoplasm in the original body. Klein in part accepts this view, but considers that these intracellular corpuscles, which are first non-nucleated, acquire a nucleus which in the adult red cell is again lost. According to these views the nucleus of the mother cell takes no part in the formation of the erythrocytes.

The fact cannot be denied that nucleated red cells, as were first definitely demonstrated by Neumann and Bizzozero, are present under certain conditions in the blood. Whether these nucleated cells and all the non-nucleated ones have identical origin remains undecided. These nucleated cells can constantly be found in the bone marrow of adults and in the circulating blood under pathological conditions. Jones, Drummond and others contend that the nucleated reds are derivatives from certain forms of leucocytes, and that by the acquiring of hæmoglobin and loss of their nuclei, they are developed into the red cells.

The contention was more particularly supported by Recklinghausen, who claims to have followed, under the microscope, the conversion of certain forms of leucocytes into nucleated red cells. Ranvier, using similar methods to Recklinghausen, was not able to substantiate the findings of the latter. However, some years later Pouchet found that he could follow the transition of elements like lymphocytes through stages in which they gradually acquired hæmoglobin in a process of degeneration. These cells remained nucleated.

Loss of nuclei of red cells.—Before discussing the loss of nuclei of the red blood cells, it is necessary for us to recognize that these non-nucleated blood elements come into existence in two conditions. Under certain circumstances, as we have pointed out above, the mature mammalian red blood cell may be liberated into the blood directly as a non-nucleated hæmoglobin-containing body, or, on the other hand, a nucleated red cell is first developed in the blood, which later on is converted into a non-nucleated one. The direct production of non-nucleated cells takes place as has been described, from the vasoformative cells by a process not unlike sporulation. The nucleated cells, on the other hand, may be developed from different tissue elements in the thymus, spleen, liver, bone marrow and endothelial tissue. Such nucleated cells find their way into the fluid blood, and later on pass into a stage of non-nucleated corpuscles.

In the human adult there are three types of nucleated red cells which may be recognized. Under certain conditions each of these three types may appear in the circulating blood. These nucleated red corpuscles are: 1, normoblasts; 2, megaloblasts, and 3, microblasts. The significance of these cells, has, up to the present, not been determined.

The origin of these nucleated cells is still under discussion, but it is generally recognized that the nucleated red corpuscles are normal young forms. This theory is most strongly supported by Neumann and Bizzozero. Hayem's contention that the nucleated erythrocytes arise from blood platelets, has only been supported by his own pupils.

The normoblast is a corpuscle of the same size as the non-nucleated form. Its nucleus, which occupies almost the entire cell, is characterized by its intense staining. The megaloblast, on the other hand, is a larger cell with a greater amount of hæmoglobin-containing protoplasm, and its nucleus stains but slightly, and is often barely visible.

In the main there are two theories concerning the loss of the nuclei in the red blood cells. The older theory, that of Kölliker and Neumann, makes the loss of the nucleus a process of intracellular dissolution or resorption. This theory was again brought into prominence by the extetnsive researches of Löwit.

The second theory, advanced by Rindfleisch, and supported by Howell, Albrecht and others, contends that the nucleus is extruded from the red cell which then forms the non-nucleated corpuscle. Rindfleisch examined fresh preparations of blood, and noted among the ordinary erythroblasts, those with eccentric nuclei, and even some in which the nuclear body was projecting from the cell as if in a process of extrusion. Following this loss of the nucleus the erythrocyte became of smaller dimensions, while the extruded nucleus again developed new cytoplasm about it to form a new erythroblast. The opponents to Rindfleisch's view contend that these microscopical appearances are artefacts. True it is that in the preparation of blood slides one not infrequently notes the distorted and displaced condition of the nucleus, and one also finds, not alone in regard to blood cells, but also in other cells, that the nuclei may lie quite free from the cell body. These, in general, must be looked on as being artificially displaced, or the remains of degenerated cells. Several (Pappenheim and Israel), have shown that the addition of certain chemicals used as fixative agents, leads to the distortion of the cells and nuclei, and even to the production of free nuclear bodies.

Kölliker's contention of the intracellular dissolution of the nucleus was first brought out in a dissertation by his pupil, Farhnar. He observed the gradual metamorphosis of the nucleus into small granules, looking not unlike fat droplets. This contention was amplified by the researches of Neumann in 1869, who followed the dissolution of the nucleus through the same stages as Kölliker, and also observed a complete loss of the nuclear granules that were distributed in the cytoplasm. He noted that at the beginning the sharply defined nucleus became paler and less distinct, while the nuclear membrane entirely disappeared. With this gradual loss of the nuclear material, the cell, which at first showed no colour in the cytoplasm, gradually assumed a yellow hue.

Schmidt noted that the hæmoglobin-containing cells varied within wide ranges, while the nucleus was still present. With the disappearance of the nucleus, the cell assumed its bi-concave contour, and the hæmoglobin proportion increased directly with the diminution in the size of the nucleus. At the same time he could find no relationship between the quantity of hæmoglobin and the amount of cytoplasm of the cell.

Neumann's studies were based on the examination of mammalian blood in the embryo and adult.

The observation has been made by many that nuclear bodies of different kinds are present in the blood. These nuclear bodies have every appearance of extruded nuclei, and vary in size from the small platelets to that of a red blood cell. They possess but little cytoplasm about them, and represent the structures described by Rindfleisch and his school as the extruded nucleus of the red corpuscles. Neumann has also noted and studied these structures, but he regards them as young erythroblasts, which have been developed in the liver. Pappenheim points out that these structures are most probably the remains of the nuclei of degenerated blood and other cells, and, in support, maintains that the liver not only takes part in the blood formation, but also in blood destruction, and that it is in this organ that certain cells are destroyed and their contents liberated.

Löwit demonstrated the intracellular dissolution of the nucleus by experimental means. By inoculating animals with a bichloride solution he was able to demonstrate peculiar bodies within the red blood cells. The bodies were granular and took nuclear stains. Löwit looked upon these granules as the result of nuclear degeneration, and he was able to follow their gradual dissolution. During the destruction of the nuclei, he did not note any nuclear extrusion.

The supporters of the theory of Rindfleisch bring strong opposition to the evidence of nuclear dissolution brought forward by Israel and Pappenheim. The former holds that the peculiarities of the nucleus, which have been noted and illustrated by the latter, are nothing further than artificial productions. By careful examination Albrecht is convinced that there is no nuclear degeneration within the cell, but there is a migration of the nucleus from the corpuscle. At times he has noted small ruptures in the cytoplasm at the point where the nucleus has been extruded.

Ehrlich has also noted the presence of free nuclei with very little protoplasm in the blood, and he believes that this protoplasm gradually absorbs hæmoglobin and develops into a new normoblast.

Ehrlich was the first to endeavour to bring the opposing views of Rindfleisch and Kölliker into agreement. He believed that the non-nucleated red cell might be developed from the nucleated one by either of these processes. In his studies he has noted that normoblasts were converted into the non-nucleated corpuscle by a process of extrusion of the nucleus, while, on the other hand, the megaloblast lost its nucleus by a process of dissolution.

I believe, however, that the strongest evidence still lies with Kölliker's theory. The mere presence of nuclear matter and free nuclei in the blood cannot be taken as strong evidence for the theory of extrusion; such nuclear substance is in part accounted for by the death of cells in the blood stream. Moreover, definite evidence in other tissues of the expulsion of entire nuclei from living and healthy cells is not forthcoming. That a process of intracellular nuclear destruction does take place in many tissues besides the blood elements is a common histological finding. We may, therefore, summarize that in the adult, the red cells under normal conditions arise mainly in the bone marrow from specialized cells, and at first obtain individuality as nucleated cells; that under certain conditions other organs may assume hæmopoietic functions during which time the endothelial tissue, particularly, is stimulated; that non-nucleated red cells may be normally produced in the bone marrow from cells as yet not determined; that nucleated cells are most commonly converted into the non-nucleated type by a dissolution of the nucleus.

Blood platelets.—An almost greater mystery surrounds the development and origin of the platelets than there is concerning the red blood cell. In viewing the question, two main considerations must be noted. Firstly, are all platelets identical in structure? And, secondly, have they a common origin? Until we have derived a more definite knowledge concerning the minute protoplasmic bodies in the blood, it will be difficult to determine anything of the nature of platelets. I think it must be recognized that the platelets described by different authors are not identical in nature. That a certain amount of granular protoplasmic debris, the result of cell disintegration, circulates freely in the blood stream, cannot be denied, and this, moreover, is borne out by the fact that all these bodies, presumably platelets, do not exhibit identical staining reactions. Howell and others suggest that the platelets are the extruded nuclei of the red cells, while Lillienfeld considers them to be derived from the leucocytic nuclei. More recently, Schwalbe is convinced that the platelets are formed as buddings from the protoplasm of red blood cells or leucocytes. The author does, however, not main-

tain that this is the only source of platelets. He points out that platelets do not evince any amœboid nature, nor do they show nuclear substance.

Sacerdotti demonstrated that under the influence of bichloride, the red blood cells show peculiar small buddings, which may be freed in the fluid and appear not unlike platelets.

Many authors have studied the nature of platelets in thrombi. In opposition to the view that platelets are definite elements possessing the power of multiplication, it has been shown that in a doubly ligated vessel, platelets were increased in immense numbers as thrombosis took place, while at the same time the blood cells were undergoing degeneration.

Albrecht points out that the presence of basic-staining substances within platelets does not necessarily point to the presence of nuclear material. He believes that the lecithin degeneration products of the red cells are accountable for the basic staining nature of some of the platelets.

Quite recently, Wright has brought forward a new contention. He regards all previous ideas, as to the origin of the platelets, as wrong. In his investigation, he has found that small bodies resembling platelets are budded off from the giant cells (megakaryocyte), of the spleen and bone marrow. In the marrow he distinguishes these cells definitely from the osteoclasts. He finds that the cytoplasm of the giant cell is granular, the granules resembling those seen in the platelets. The giant cell is amœboid, and sends out long, narrow processes, which become divided up or cut off into small bodies which are then liberated into the surrounding fluid. These pseudopodia may even stretch between the endothelial cells of the blood capillaries, and in this position give off the platelets.

Basophile granulations of the erythrocyte.—These granulations were first described by Askanazy, in 1893, and since that they have been studied by Shaumann and Lazarus in various forms of anæmias. Askanazy first suggested that these granules were the result of karyorrhexis, a view which has been accepted by many. Grawitz, however, insists that they arise from a degeneration of the cytoplasm. Though the origin of these granules is still undecided, the weight of evidence favours the theory of their nuclear origin.

Origin of leucocytes.—The white cells of the blood make their appearance at a later date than the red cells. The exact origin of these first leucocytes is still uncertain, but, at all events, they are derived from

a mesenchymatous tissue. It is thought by some that these early cells are distributed throughout the body to form the later lymph nodes.

After lymph glands appear they probably assume a function of producing leucocytes, and it appears evident that the various leucocytes form different elements in themselves, which have the power of multiplication by mitosis.

It is difficult to make a comparison or to draw any conclusion as to the origin of the white cells by the study of the various vertebrates, for the mode of origin in these different species varies. Thus, in fish and certain amphibia, the bone marrow takes no part in blood formation, and in other vertebrates the lymphatic system is wanting. So we must confine our remarks to the conditions found in man.

The first white cells develop as specific elements from certain embryonal mesoblastic cells, and for some time previous to the development of definite blood forming organs these primary leucocytes multiply in the blood stream. Soon after this the leucocytes are developed at certain sites, which Saxer holds become established by the proliferation of obstructed leucocytes in the mesenchyme. Saxer believes that both red and white cells are produced at these sites.

The thymus gland is considered by most authors as being *par excellence,* the most important organ producing leucocytes in the embryo and fœtus. A number of authors, (Beard, Nussbaum, Schulze and Bell), maintain that the epithelial tissue of the thymus is converted into lymphatic tissue. Beard goes so far as to say that all lymphatic tissue has its origin in the thymus.

It is important to note that certain lymphatic tissue is developed from cells which have wandered to the site from elsewhere, either from the blood or from tissue cells. In the fœtal liver small collections of leucocytes are found on the outside of the capillaries. Whether these cells have originally wandered into these sites, or whether they became developed from the capillary endothelial cells is difficult to say. It is, however, evident that the liver is more active in producing white cells during the first half of fœtal life than it is later. At what stage the spleen enters into the production of leucocytes is not known. The bone marrow is the last tissue which takes on the function of producing white cells. Some believe, that the white cells produced there, are derivatives of leucocytes which have wandered in, others hold that the white cells arise from the connective tissue of the part.

Askanazy supports the view that leucocytes and red blood cells are developed from definite cells which constantly reproduce these cells, but he is also inclined to believe that other than these specific cells may

take part in the production of blood cells in the fœtus. Although the fœtus possesses many organs for forming white cells, the blood in the early fœtus is comparatively free from white cells. Askanazy points out that at this time these lymphatic areas are rather a kind of store-house, than an exporter of leucocytes.

The origin of the leucocytes differs somewhat after birth. Flemming first noted the multiplication of the leucocytes in the blood stream, and since then this has been confirmed by Loewit, Arnold, Hayem, Spronk, Dock and others. However, it was soon evident that such mitoses occur but rarely, or only under pathological conditions.

In dealing with the origin of leucocytes in the adult our attention is naturally drawn to the lymph glands. These glands are producers of leucocytes, but their greater function lies in being available store-houses of leucocytes for the blood to call on. Not alone do the lymph glands produce leucocytes for the blood stream, but also for local use and for the infiltration of the neighbouring tissue when this is needed.

Neumann has noted the fact that more lymphocytes are distributed into the blood stream than are accounted for by the lymphocyte count. He believes that some of these cells become granular and polynuclear leucocytes. Flemming has noted the occurrence of multinuclear leucocytes in the cortex of the lymph glands, presumably derived from lymphocytes.

Exactly what part is played by the spleen in the production of white cells is not known. Extirpation of the spleen, too, has not shed any new light on the subject, save that there is a temporary increase in the lymphocytes of the blood. Whether the spleen is a blood producer at all, or only represents a blood filter, is difficult to say, (Askanazy).

In extra-uterine life the bone marrow is the most important producer of leucocytes, other than lymphocytes. The emissary veins are constantly crowded with polynuclear cells, which are still undergoing division. Ehrlich made the discovery that no other organ showed the number and variety of granular leucocytes and he maintained that the granular white cells were derived only from the marrow.

The granular leucocytes, according to Ehrlich, are to be sharply differentiated from the lymphocytes, with which they have no genetic similarity. The former are cells which develop in extra uterine life, and which may be divided into three classes, with neutrophile, eosinophile or mast-cell granulations, the latter are in greatest proportion in fœtal life and arise in the thymus and lymphatic system. Whether such a sharp distinction in morphology, function and origin can be

drawn between the lymphocytes and the granular leucocytes is a debatable question.

According to Neumann in some of the lower animals, lymphocytes almost alone appear in marrow, and these cells become granular leucocytes in the circulating blood. It has long been demonstrated that lymphocytes are more or less amœboid, and that they also possess certain powers of phagocytosis. Askanazy points out that the variation in amœboid power is one relative to the quantity of cytoplasm. This author also believes that the development of granules within the cells is a specific product of the cell protoplasm.

Wolff and Michaelis claim to have demonstrated that the basophilic protoplasm of the lymphocytes may develop within it certain granulations. Such cells can be found in all stages of development in the bone marrow, and may be followed to the completely formed multinuclear leucocytes.

Shridde is convinced that cells possessing certain definite granulations retain this type through their existance and do not alter themselves into new forms.

It may be too, as some have held that the giant cells of the bone marrow are the mother cells of not one but various orders of leucocytes.

Mast cells occur but rarely in the blood, and little is known definitely of their genesis.

Ehrlich has been the main contributor to the work in the varieties and differentiation of the various leucocytes. He pointed out that the staining qualities of the leucocytes varied, and that these differences were due to the presence of granules of different chemical affinities. On the character of these granules in the leucocytes, and the nature of their staining Ehrlich devised an elaborate classification. This classification, based on similar observations was later simplified by Kanthack and Hardy, viz., (1) Finely granular oxyphile; (2) Coarsely granular oxyphile; (3) Finely granular basophile; (4) Coarsely granular basophile; (5) Lymphocyte; (6) Hyaline cells.

The hyaline cell described by Kanthack is the large macrophage which has its origin from the endothelial cells of the blood and lymph vessels and from the lining of the serous cavities.

Coagulation of blood: Physiologists recognize that next to color, viscidity is the most distinctive feature of the blood, outside the body. The actual viscidity varies but little during life. When blood is shed, rapid changes take place in it, chief among which is the appearance of clotting with fibrin formation. Fibrin makes its appearance in shed

blood in from ten to twenty seconds. In this short time, therefore, definite changes have taken place in the blood mass, which suggest that these changes commenced at the moment of shedding.

The contributions made by Hewson and John Hunter, form the starting point of our knowledge of the coagulation process. Later the studies of Buchanan, Denis, Schmidt and Hammarsten, laid the foundations for the theories of the clotting of blood. In the main their studies were the observing of certain facts such as, that blood retained within living vessels does not clot; blood plasma will clot in a like manner as whole blood; contact with foreign particles hastens clotting; a protein substance, fibrinogen, can be precipitated from the normal plasma; another substance thrombin or fibrin-ferment which is destroyed by heat can be separated from blood; this ferment converts fibrinogen into an insoluble fibrin; the formation of the fibrin network takes place in the vicinity of the blood platelets and all fluids containing fibrinogen will coagulate with fibrin ferment.

Since coagulation is dependent on the action of a ferment on fibrinogen, the studies on clotting mainly concern, (1), the formation of the thrombin, (2), and the conversion of fibrinogen into a primary soluble fibrin, which then rapidly passes into the insoluble state.

In 1875 Hammarsten demonstrated the fact that the addition of calcium salt to coagulatory fluids increases the yield of fibrin, but the necessity for the presence of this salt was not recognized until fifteen years later by Reynolds Green. He pointed out that if the calcium salts were removed from the plasma by dialysis, coagulation did not occur. Since the determination of this phenomenon, various means have been devised to inhibit the coagulation of blood by ridding the fluids of their calcium content.

It was first believed by Arthus and Pages that calcium-free plasma contained thrombin or fibrin ferment, since it could coagulate fibrinogen solutions, and as the fibrin yield varied with the quantity of calcium present they believed that this salt played a definite role in the second stage of fibrin formation. Pekelharing repeated the experiments and showed that the calcium-free plasma did not contain fibrin ferment, but that it contained a prothrombin which in combination with calcium was thrombin or fibrin-ferment. This author believed that the calcium containing fibrin-ferment handed on the calcium to the fibrinogen in the process of clotting, to produce fibrin.

Schmidt denied the specific action of calcium in the phases of coagulation, and held that the presence of calcium only favored the conversion of a zymogen into an enzyme.

The role played by the calcium was eventually cleared up by Hammarsten. He found that calcium was normally present in the blood in two states, (1), either as the free salt, or, (2), in combination with proteids. In oxalated blood it is the free calcium alone, which is precipitated and hence it is this free salt which is important. When this non-coagulable oxalated plasma is cooled to 0°C. a fine precipitate separates out and as this occurs the plasma loses its power of clotting with the addition of calcium. Therefore, this second precipitate is an important factor for coagulation. From the clear supernatant fluid Hammarsten was able to isolate a calcium free fibrinogen which he could clot by the addition of a calcium-free thrombin or ferment. Hence it is proved that the calcium salt is not essential in the conversion of fibrinogen into fibrin. On the other hand, the calcium seems necessary for the formation of fibrin-ferment from the pro-thrombin, that is the calcium converts the zymogen into the enzyme as Pekelharing had stated.

It has been noted by many investigators that certain tissue extracts accelerate the coagulation process. By some it was contended that the disintegrated nuclear material of degenerating cells assisted clotting,—others regarded the cytoplasm as the stimulating substance. Field came to the conclusion that the tissue extracts were a necessary factor for the formation of thrombin. According to him, an element from the plasma unites with a certain element from the tissue cells, and these two agents along with a calcium molecule make up the thrombin or ferment.

Blood which is allowed to flow about in the subcutaneous tissues, or to which a tissue extract is added coagulates more rapidly than that taken directly from the vessels. It seems evident, therfore, that tissue extracts contain an active principle, thrombo-kinase, (Morawitz), which is concerned in the formation of the ferment.

In short, the prothrombin is present in the circulating blood, and is activated in the presence of calcium by a zymoplastic substance obtained from leucocytes or tissue cells, (Schmidt).

Morawitz believes that thrombin or fibrin-ferment has its origin from two sources. On the one hand the zymogen appears in the plasma and is activated by calcium salts alone, the other exists in the serum separated from the coagulated blood and can be activated in the absence of calcium by weak acid or alkalies.

Outside the body the morphological constituents of the blood, and in particular the blood platelets yield thrombo-kinase when brought in contact with non-living matter. As to the origin of the zymogen or thrombogen there is little known.

In these reviews I have drawn extensively from the writings of Minot, Askanazy, Pappenheim, Buckmaster and others.

EXCESSIVE LENGTH OF THE SIGMOID FLEXURE AND ITS SURGICAL SIGNIFICANCE.

by

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It is universally acknowledged that there is much variation in the length of the sigmoid flexure, within what may be described as normal anatomical conditions.

The normal length of the Sigmoid Flexure in the adult, is stated by E. H. Taylor, (Applied Anatomy), to be "about 17 inches," the "average length" in Morris' Anatomy, 17½ inches, and the "length of the sigmoid" in Deever's Surgical Anatomy, 17-18 inches, in Gerrish's Anatomy, "14 inches or more," while Byron Robinson classes as "unusual length" or giant sigmoid, anything in excess of 25 inches.

Anatomists, pathologists, and surgeons each from their own points of view, are constantly interested in what may be called the normal variations in the length of the sigmoid, but in this communication, I shall consider only those of unusual length, say, in excess of 25 inches in the adult. In the Medical Standard of Chicago appeared, during the past year, (March to November, 1907), a series of articles on the sigmoid flexure, by Byron Robinson, B.S., M.D., in which the anatomy and physiology of the sigmoid are most fully and exhaustively dealt with.

From these articles I take the liberty of quoting the following statements:—"The sigmoid is a fæcal reservoir. The sigmoid begins at the distal end of the left colon, and ends at the proximal end of the rectum. It is a single, inseparable, indivisible, colonic loop extending from the colon to the rectum."

"In 490 males there were 6 subjects with a sigmoid of 26, six with 28, seven with 30, three with 32, and one with 36 inches in length."

"In 165 females there were 3 subjects with sigmoid of 26, four with 30, one with 32, and one with 33 inches in length."

"The sigmoid is relatively long in youth and short in adult life. In 485 males, (in a series of 700 autopsies), the maximum length was 36 inches, the average was 19 inches, and the minimum was 6 inches. In 165 females the maximum length was 33 inches, the average was 17 inches, and the minimum was 5 inches."

"The sigmoid has the widest range of motion of all the abdominal viscera. It varies greatly in position, length, diameter, distension, and evacation."

"It lies in the right iliac region in 19% of cases (Huguier's position)."

"Giant vertical sigmoid occurs in 7% of males and 6% of females."

"Curshmann describes 15 monster sigmoids in 233 bodies, which means 6%."

"Prof. Wenzel Gruber reports a giant sigmoid of 41 inches in length, and he remarked that when he exposed the viscera by an abdominal incision, only colon and a small portion of the bladder was observed—the giant sigmoid almost completely occupied the abdomen."

I have also the following communication from Dr. Klotz based upon his autopsy experiences:

Observations made on the sigmoid in a great number of autopsies reveal to the pathologist the great variation that may be present in this organ. These variations consist mainly in the site and size of this part of the bowel, and attention is attracted to them by the frequent distension (gaseous and otherwise) of the entire colon. There is one type of sigmoid which possesses in its lower portion a very short mesentery, so that the bowel is closely tied down to the brim of the pelvis and the sacrum. In these cases the mesentery may not be more than an inch in length; in others again, in which the sigmoid is to all appearances normal, the mesentery may exceed ten inches. It has been noted in this latter type of mesentery that an exceedingly long mesentery does not necessarily allow the sigmoid to be twisted on itself. In those cases in which the base of the fan-shaped mesentery is broad and does not converge to a point, the sigmoid, although lax and able to stretch across the abdomen to the cæcum, does not readily become twisted. On the other hand, where this mesentery converges to a common centre so that the first part of the sigmoid is in close relation to the first portion of the rectum a twist can readily be produced artificially.

Slight variations in the site of the mesenteric attachment occur frequently and a dextro-position is occasionally met with.

In three cases of malignant disease of the pelvis obstructing the rectum the dilatation of the sigmoid and colon was especially noted. With this enlarged sigmoid there appeared in each case a lengthened mesentery. In two cases of pernicious anæmia an abnormally large bowel, including the sigmoid, was present, and in two children a similar condition was noted.

From the observations made in the general run of autopsies an enlarged colon and sigmoid is frequently noted among those giving a history of chronic constipation. These enlarged sigmoids usually lie above the brim of the pelvis and are commonly found lying towards the cæcum on the right. The mesentery in these cases is unduly lengthened. When, however, the sigmoid is collapsed it is found coiled up in the cavity of the pelvis.

The causes of excessively long sigmoid are partly congenital and partly acquired.

In those cases which call for treatment by the physician or surgeon, there can be little doubt but that the starting point was originally a congenitally long sigmoid with a long and free mesosigmoid, and that distension was subsequently produced and elongation increased by accumulation of feces ("Hirschsprung's Disease"), or by constipation, accumulation of gases, malposition, etc.; although it is conceivable that the acquired causes, alone, operating upon a sigmoid of not more than ordinary length might produce a giant sigmoid. The following are abbreviated histories, taken from the hospital records, of 3 cases upon which I have operated:—

Case I.—W. E. aet. 3½ years was admitted to the Royal Victoria Hospital, Jan 3, 1896. This patient seemed to be all right at his birth, but his bowels did not move for 5 days, and after purgatives a movement was produced. During the first year of his life, the patient was constantly constipated, going as many as 11 days without movement, after which the administration of a glycerine suppository or castor oil would produce a movement. For a year he had no enlargement of the abdomen and suffered no pain and was a very quiet baby. Flatus always passed very freely. For about 2½ years, prior to admission the abdomen had been swollen, and had never come down to normal size. Up to Christmas, 1895, this condition had continued with varying degrees of distension, free passage of flatus and inaction of bowels, except by use of purgatives, but without pain. The stools as passed, presented at first large lumps of solid fæces followed by a small continuous solid evacuation quite round and about the size of the little finger. At two periods—about 12 months and 9 months before admission, he had diarrhœa for 2-3 days but the bowels soon became blocked again.

On Christmas day, 1895, after injection, he had several movements but after these ceased there were no more stools for a long time and the flatus ceased to come freely and distension and pain became marked, the distension exceeding anything it had ever reached before. Attempts were made to move the bowels about every second day by injections but very small quantities only came away and very little wind. The father used to rub the patient's abdomen when he suffered from colicy pain, and it often brought wind up by the mouth. On Sat. Jan. 11th, after a standard enema and castor oil, the patient had an enormous stool, first solid then semisolid, and later liquid with a great deal of flatus.

There was nothing unusual in the personal or family history and the organs were sound. The abdomen presented an extreme enlargement of uniform size. The girth at the largest part was 27¼

inches and from the ensiform cartilage to the pubes the measurement was 13 inches.

Well marked peristaltic movements were excited by palpation, with rumbling of gas. The abdomen was soft and unresistant. There was no tenderness. The boy was rather pale but took his food well and nutrition seemed, on the whole, fairly good. On January 16th. I opened the abdomen by a median incision below the umbilicus. A small quantity of clear serous fluid escaped. There was great distension of the sigmoid with gas and feces. A finger introduced into the rectum met with no obstruction at its junction with the sigmoid and could be felt by the hand in the abdomen. A rectal tube was passed well into the sigmoid but no flatus escaped. As there was no obstruction, it was thought that the bowel might be evacuated by enemata and purgatives and the wound was closed. After operation, enemata produced large stools and much flatus. On the 30th of January, as the patient's progress did not seem sufficiently satisfactory, the abdomen was opened again in the left inguinal region. Bougies were again passed into the sigmoid and attemps made to assist evacuation but without result. The sigmoid was brought outside the abdomen and punctured by a large trocar and quantities of semi-solid feces removed after which the punctures were carefully closed by suture. The intention was to facilitate the employment of enemata by partial evacuation of the retained feces.

The child's condition remained satisfactory until Feb. 6, when he developed peritonitis, grew rapidly worse, and died at 6.30 p.m.

At autopsy, 17 hours after death, it was found that one of the punctures had reopened and feces had escaped and the child had died of peritonitis. The large intestine measured from sigmoid to cæcum 50 cm. The sigmoid itself measured 38 cm. and contained 850 grams of feces. The descending colon was thickened, somewhat dilated and its mucosa congested but otherwise the intestines, large and small, were normal.

(This case was the subject of a paper read by Dr. C. F. Martin before the Montreal Medico-Chirurgical Society on the 20th of Nov. 1896).

The paper was entitled "On So-Called Idiopathic Dilatation of the Large Intestine" (Hirschsprung's Disease), and was published in the Montreal Medical Journal, Vol. XXV. Page 697. I am indebted to Dr. Martin for permission to reproduce the illustrations published with his paper.)

Case II.—Wm. S. aet 36, was admitted to the Royal Victoria Hospital at 2 p.m. Feb. 6, 1906, with the following history.

For the past 3 weeks he had been feeling out of sorts with what he calls a "bilious attack," suffering off and on with headache nausea, constipation and wind pains in the abdomen.

On Friday, Jan. 31st, he had a kind of fainting attack when in his cellar at home and for this he took salines and had a good movement of the bowels on Sunday. Monday the patient was not extra well but had no definite trouble. Patient had severe abdominal pain Tuesday morning, but went to work, but the pain became so severe that he had to come home at 2 p.m. During Tuesday and Wednesday, (Feb. 4 and 5), attacks of abdominal pain were very severe and required morphia. Salines oil and enemata were tried but had no effect on the bowels, and on Wednesday evening, the patient began vomiting, and by Thursday morning, the vomited matter was dark and smelt badly, and the patient came to Hospital at 2 p.m. (Feb. 6, 1906).

Personal History: The patient had always been healthy except for chronic constipation and flatulency. He had tapeworm 4 years ago. His habits have been regular and he uses no alcohol nor tobacco.

Family History: Good.

Present Condition: A thin muscular man of medium height; face very pale and of abdominal type showing great distress; lies in bed with knees drawn up and at times writhes in agonies of pain felt across the abdomen. T. 98; P. 72; R. 24.

Abdomen prominent especially upper zone, tympanitic and tender all over to palpation.

Rectum normal. Organs normal.

The abdomen was opened immediately, in the middle line below the umbilicus. The intestines were dark colored and the sigmoid flexure was found twisted upon itself with a double twist. It was delivered from the abdomen, the twist undone, and a rectal tube passed from the anus through which gas and feces escaped. The sigmoid was very long and very large, but no attempt was made to measure it.

The abdominal wound was closed and the patient made an excellent recovery and was discharged on the 20th of Feb. 1906.

I advised him, however, that on account of the great length of the sigmoid he would be exposed to the risk of subsequent volvulus, and that in my opinion, it would be wise before he left the Hospital to have the sigmoid flexure excised altogether. He would not consider this advice, however, and left as already said, at the end of two weeks. On the 21st of September, 1907, (19 months later), he was *readmitted,* complaining of severe abdominal pain, constipation and distension.

Since leaving the Hospital last year, the patient had been in good health save for occasional attacks of general abdominal pain, with cons-

tipation and some distension, never lasting more than one day. He had been quite well during the past month. Bowels were regular up to Friday 17th, on which day he had several " watery stools." On Saturday and Sunday. (18 & 19), he had similar stools. He did not notice if there was any blood in them. There was no straining to pass the stools, but during Saturday and Sunday, he felt after each stool as if he were not finished. Yesterday morning (Mon. 20), he was wakened at 5 a.m. by a severe pain of indescribable character, not griping, felt all over abdomen but mainly in the epigastrium and around the umbilicus. This was the first pain he had had, and he had been feeling well and doing his work up to this time. (Had had beans for Sunday dinner). Two hours later he took a dose of Castor Oil which had no effect. Vomiting began in the afternoon, and was frequent and severe all afternoon, but abated somewhat during the night. The vomitus had no dark look and no had odor; he calls it " bile." No vomiting to-day, (Tuesday). Pain remained constant and severe all day and all night; he has had none to-day except for slight paroxysms at frequent intervals. Has passed no wind since the onset of the pain (30 hours).

Present Condition:—Patient is a well-nourished man; face anxious but not " abdominal;" tongue slightly coated but moist, color and pulse good, respiration normal.

Abdomen:—The abdomen is uniformly distended, tympanitic all over; not tender on pressure. Liver dulness mostly obliterated. Occasionally waves of contraction pass over bowels throwing abdominal wall into irregular furrows and elevations, lasting 1-2 minutes at a time. Rectum normal, though coils of distended intestine are felt pressing down to rectum. No mass can be felt in the abdomen. Scar of old incision scarcely visible. T. per rectum 99.03. Organs normal.

He was immediately operated upon again. Incision in the middle line; some free serous fluid in the abdominal cavity; a loop of the distended sigmoid presented, moderately congested; the loop is described as appearing to be about 2 feet in length. A single twist or half turn was found at the extremities of the sigmoid which was easily corrected when the bowel was delivered from the abdomen. A rectal tube was passed to demonstrate the freedom of communication with the rectum.

The wound was closed and the patient as before made an excellent recovery.

As I knew from previous experience the probable condition ,and as his general condition was good, I advised him before undertaking this operation to allow me to remove the sigmoid, but he would not consent.

About 2 years later, he was taken ill in some small town near Boston, with what he recognized as the same trouble as he had previously been

operated upon for, and after about 24—36 hours of these symptoms, he left by train to come to Montreal and died on the train before its arrival in Montreal.

These later facts concerning his last illness were obtained for me by Dr. J. A. MacDonald, from the patient's wife. Unfortunately at this late date, we are unable to secure any fuller details.

Case III.—E.W.L. aet. 42, school-teacher, was admitted to the Royal Victoria Hospital at 9 p.m. Wed., Nov. 27, 1907, with the following history:—

For years the patient has been troubled with irregular attacks of severe constipation coming on at intervals of 2 or 3 months or less frequently. He has always had to pay strict attention to his bowels and frequently used purgatives. About 2 years ago, he had a severe attack of constipation lasting for 4 or 5 days, accompanied by pain in the lower half of the abdomen. The pain was not very severe and the constipation was relieved by the use of castor oil, after having been 4 or 5 days without a movement of the bowels. Since then he has never been laid up a day until the present attack, although he has had from time to time other attacks of constipation lasting 2 or 3 days. Since last Thursday morning, (Nov. 21st),—6½ days—his bowels have not moved, and on Friday morning he commenced taking purgatives which proved ineffectual. He passed some flatus on Saturday. He felt out of sorts but continued teaching his class until Monday, when he first consulted a physician. On Tuesday morning about 9.30, he was seized with very severe gripping pain in the lower half of the abdomen, and this has increased in severity since, and has become general throughout the abdomen. On Saturday, he complained of being "puffed up," and his wife in applying hot poultices to the abdomen, noticed this distension increasing—but on Tuesday it increased rapidly, and on admission the abdomen was markedly distended. On Tuesday afternoon, he found that he could not take a long breath, and on admission there was marked dyspnœa. He felt nauseated on Monday, and this continued until admission at 9 p.m. Wednesday, November 27th, and he vomited two or three times on Tuesday and once after admission.

Personal and Family History not important.

The patient was moribund on arrival at the Hospital, the pulse could hardly be felt at the wrist, the heart sounds were feeble, he was livid, temperature subnormal, breathing very rapid and shallow, but he was mentally quite clear. He complained of pain in the abdomen, more particularly in the lower half. There was a slight amount of albumen in the urine. There was great distension of the abdomen, showing ex-

cessive fulness in the lower part and right side with corresponding relative flatness in the upper and left portion.

The abdominal wall was as tense as a drum. There was no liver dulness on percussion. The abdomen was opened immediately by a long vertical incision over the most prominent part of the swelling to the right of the right rectus muscle.

On opening the peritoneum, an extremely large distended bowel of greenish gray color evidently gangrenous presented in the whole length of the wound. There was also a large quantity of foul smelling dark blood-stained serum free in the peritoneal cavity. This coil of large intestine was so distended and apparently so fragile that it was punctured and a large quantity of blackish fluid resembling altered blood evacuated before delivering it from the abdomen.

It was then found to be the sigmoid flexure twisted upon itself at its extremities and was promptly removed. The rectal and colic extremities were invaginated by purse-string suture and further secured by Lambert sutures, and a loop of the transverse colon was brought out through the abdominal wall on the left side and a Paul's tube inserted.

The abdomen was flushed with saline solution, the wounds closed, and although the patient's condition was extremely grave throughout he lived until 3 o'clock the following day, during which time he had no pain nor vomiting nor any symptoms of any kind except great prostration. His death was evidently due to toxæmia which had occurred through the gangrenous bowel before operation. The history would seem to indicate that the vitality of the obstructed bowel had become so lowered by Tuesday morning (36—40 hours before operation) that transudation of contents and secondary symptoms began then.

The sigmoid flexure after removal measured 59½ inches in length. It was impossible in the circumstances to determine its diameter, but I should say that it must have been 5 or 6 inches at least. The extreme length and diameter of the sigmoid in this case was no doubt due to some extent to the mechanical stretching during the period of obstruction. It will be noted that in both the cases operated upon for volvulus of the sigmoid the patients had suffered all their lives from constipation and flatulence, and both had had many attacks which in the light of later experience would seem to have been due to partial or temporary obstruction, and it is not difficult to understand how an exceptionally long and freely movable sigmoid becoming overloaded might assume a position which would cause temporary obstruction.

A considerable number of cases of both the foregoing varieties of elongated sigmoids are reported; but in many of them, measurements are not given and the reports are otherwise incomplete.

Surgical Significance of excessively Long Sigmoid:—The sigmoid flexure has received much attention from surgeons in recent years, and the conditions known as sigmoiditis, mesosigmoiditis, diverticulitis, and diverticula of the sigmoid, are well known.

The length of the sigmoid is also a very important factor in planning a radical operation for cancer of the rectum.

I do not propose, however, to refer to any of these conditions but only to discuss the conditions illustrated by the cases reported viz.:—"Hirschsprung's Disease," and obstruction from volvulus of the sigmoid due primarily to its extreme length. In both conditions the only satisfactory treatment would seem to be removal of the sigmoid. This at first sight may appear to be a somewhat radical recommendation, but in my opinion, it is fully justified by the seriousness of the conditions. Quite recently Mr. Arbuthnot Lane, of London, has published a series of 39 cases in which he had removed a part or the whole of the large intestine for constipation of a chronic and obstinate character.

In Case No. 1, operated upon 12 years ago, the operative measures adopted were of a palliative character and the child died. To-day I have no hesitation in saying that the proper treatment for such a case is the removal of the enlarged and overloaded sigmoid and the re-establishment of communication between the descending colon and the rectum. It would appear to be useless to hope for the restoration of function in the sigmoid in such a condition, even if it could be unloaded and kept evacuated for a considerable period of time.

With regard to the second condition, it is almost a surgical axiom that from one half to two thirds of the cases of intestinal obstruction from volvulus are due to volvulus of the sigmoid; also that recurrences are common and that they are probably common in direct proportion to the excessive length and mobility of the sigmoid.

Moreover, no device hitherto adopted for anchoring the sigmoid so as to prevent this recurrence has proved satisfactory.

In Case No. 2, I recommended after the first operation and before the second, the excision of the sigmoid, but the patient would not consent to it. It will be noted that this patient had three attacks of volvulus within three or four years, the last of which was fatal before operative relief was obtained.

THREE CASE REPORTS.

BY

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Of the three cases here reported there is but one which may be called complete, namely, that of Ritter's disease. In the other two, as is usual in a country practice, no post mortem could be obtained, and therefore an imperfect picture is presented. The diagnosis, however, seems to be sufficiently clear to warrant publication. At least two of these cases are rare enough to be placed on record. The third, though not rare, is uncommon; and in the absence of melœna or hæmatemasis is not likely to be thought of as a possible diagnosis in an obscure case.

A Case of Congenital Atresia of the Posterior Nares.

On December 15th, 1905, I was called to a confinement (IV. para) which followed the course of a L. O. A. without complication. The child appeared to be healthy, weighed 7½ lbs. and had a good quantity of subcutaneous fat. It cried heartily for a short time after birth, and required nothing but a splash of cold water to start respiration. On subsequent examination, however, I noticed that it breathed in a very noisy manner, like one breathing through the closed lips. As the throat was filled with mucus, the condition was at first put down to the blocking of the nose with this thick tenacious material, but, after cleansing as well as possible, it was seen that no air was passing through the nostrils. As the matter seemed to be of no immediate importance further examination was postponed until next day, when it was found that the posterior nares were blocked in such a way that a small olive pointed filiform could not be passed down to the pharynx on either side. The child was put to nurse, but it was found that it was impossible for it to take the breast, although apparently anxious to do so, as only a choke and splutter resulted from all its efforts to obtain nourishment in this manner. The question of immediate operation arose at this time, but it was considered unwise to subject a child of three days old to an operation, no matter how simple, unless it was evident that it could not get enough food otherwise.

It was found that with a bottle a careful nurse could supply ample nourishment if care was taken to allow the child only two or three swallows between each breath, and for a couple of weeks all went well. On the 20th day I was asked to "stop a diarrhœa" which had begun four days before, and which was accompanied by vomiting. Examination

Reported at the District of St. Francis Medical Association.

showed some emaciation, and I was told that the child was fed whenever it cried instead of every two hours as directed.

Regular feeding with white of egg in water soon regulated the bowels and under a strict two hour regime she began to pick up, and by the twenty-fourth day seemed better than ever before.

Unfortunately, on the twenty-sixth day the one who had been devoting all her time to the child had to leave, and she was left in the hands of those unaccustomed to the work.

I was once more called in on the thirty-first day, only to see that the child was dying. It was very pale and cold with sighing respirations through the open mouth, and heart beat barely perceptible. It died in three hours, on January 21st.

A post mortem was not allowed further than a digital and instrumental examination of the posterior nares. This confirmed the original diagnosis, though whether the occlusion was of bone or membrane I could not discover. Inanition was doubtless the primary cause of death.

Prof. W. Kümmel states that about forty cases of congenital closure of the posterior nares have been observed. In the typical forms the membrane lies just in front of the margin of the posterior nares, the latter being perfectly normal in other respects. In atypical forms there are extensive adhesions covering a wide area, which frequently involve the naso-pharynx also. Further, Hoag seeks to explain this malformation by a persistence of the bucconasal membrane, which during fetal life shuts off the posterior nares.

Kümmel also says that bony closure would hardly be expected at an early age, and thinks that operation should be postponed until later, nourishment being supplied by spoon or stomach tube.

A Case of Dermatitis Exfoliativa Neonatorum (Ritter's Disease).

On December 18th, 1907, I was called to attend Mme. R. in her third confinement. The labour was completed without any complication and was comparatively easy, the child being in the L.O.A. position and not very large.

The child was healthy and at full term, notwithstanding the fact that I had been called in on May 12th for a threatened abortion.

The mother had been anæmic since her last child was born (August 19th, 1906), and was never very robust, although not complaining of any definite trouble. She had never nursed any of her children, yet they were all healthy and well grown. There was no history or evidence of syphilis.

The baby weighed 7¾ lbs. and was normal in every respect. It was washed with olive oil, castile soap and soft water, and the cord was

tied with a sterile ligature, and cut with sterile scissors, and then wrapped in aseptic absorbent cotton, according to my usual technique. It separated normally without suppuration in about one week. The infant was put on modified milk and did well.

On January 8th the father called to see if I could give him something "to prevent the skin from coming off the baby," and upon going to see it I found a most extraordinary object. Th epidermis of the neck and back was completely gone, leaving a red glazed surface such as one sees under a scalded area of skin. The abdomen was partly bare and partly covered with what looked like damp tissue paper. The buttocks and thighs were in the same condition, but the arms and legs showed merely a red erythematous patchy rash extending from the body downwards. The face was in much the same condition as the abdomen, although smaller areas were denuded, and the mucous membrane of the mouth lay wrinkled upon the lower layers. The skin about the anus showed a few fissures, but there was nothing of this sort around the mouth. The child had no fever, but was very restless and cried incessantly, yet it took nourishment well and did not lose weight.

The clothing was of the roughest description, and when I had it changed for linen saturated with zinc oxide ointment and surrounded with cotton wool, the baby fell asleep and gave very little trouble afterwards.

The parents stated that the rash had appeared a few days before I saw it, beginning about the neck, and before they could realize that it was anything unusual the skin began to peel off in sheets. The whole process lasted about seven days, and the convalescence was free from complication, no scarring resulting from the desquamation.

I saw the child last on February 10th and it looked fat and healthy.

Those interested in the subject should refer to the article by E. P. Carlton in the *New York Medical Journal,* September 28th, 1907. He reports a case, and gives a complete bibliography from 1878, when Ritter reported 297 cases, with a mortality of 48.8 per cent. Since then there have been but 33 reported, with a mortality of 55 per cent. in the 29 which were followed out and completely reported.

A Case of "The Hæmorrhagic Disease of Infants" (Holt).

On February 11th, 1908, I was called to a case of confinement (XVI para.) in which the patient was delivered of a male child weighing twelve pounds, after a rather precipitate labour, the only delay occurring after the head was born, due to the broadness of the shoulders.

The child cried at once, and did not require any measures to induce breathing. It was cared for in the usual way, and when carefully ex-

amined seemed to be in very good condition. It slept well and took the breast normally some six hours after delivery. I saw it again ten hours after birth and it seemed to be perfectly well, but about six hours later, at 4.30 p.m., it began to cry, and became restless, drawing its legs up on the abdomen as if in pain. I was absent at the time, and Dr. McCabe, of Windsor Mills, was called in to see the child. It did not appear to be very ill, the pulse being about normal and the respiration a little hurried. The abdomen was somewhat distended and a little tender apparently, while on the back a few patches of dark purple colour could be seen. No urine had been passed and the bladder was empty. Later the child began to vomit some very dark coloured material, which proved to be blood, and then it began to pass similar motions by the bowels. At the same time the left side of the scrotum became infiltrated with blood and turned quite blue-black in colour.

Pallor and profound weakness followed, and the little patient died about one in the morning; some twenty-four hours after birth.

The diagnosis of this case, perhaps, presents some difficulties. On account of the size of the child some direct laceration or injury to the abdominal viscera might be expected, but on the other hand, the mother has seldom had a child weighing less than eleven pounds, and several weighed twelve, all her labours being over in a few hours. This time the pains began about ten at night and the delivery was accomplished at about half past twelve. On account of these circumstances I took particular care to examine the baby in detail for possible injuries, without success. All other evidence points to a hæmatogenous origin of the trouble. The absence of symptoms for over fifteen hours, the natural appearance and conduct of the child for this length of time would be extraordinary had there been any lesion extensive enough to cause death within nine hours after the first symptoms. The early appearance of hæmorrhagic spots on the back followed by melœna and vomiting of blood as well as effusion of blood into the scrotal tissues seems to clinch the diagnosis as being what Holt terms the hæmorrhagic diseases of infants, or morbus maculosus neonatorum.

In this case there was no jaundice, no signs of infection, and syphilis can be excluded. Post mortem, a great quantity of bloody serum oozed through the nostrils and plugging had to be resorted to in order to stop it.

Holt states that the condition is uncommon, more particularly in private practice. Townsend reports the occurrence in .6 per cent. of all cases in the Boston Lying-in Asylum, and Ritter reported 1.4 per cent. at Prague.

In conclusion, I wish to thank my *confrère,* Dr. McCabe, for describing the condition he found in my absence, and allowing me to embody it in this paper.

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MELANO-SARCOMA OF THE COMMON BILE DUCT CAUSING COMPLETE OBSTRUCTION.

BY

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The case which I wish briefly to present this evening is one of alveolar melano-sarcoma which occurred in the lower portion of the common bile duct. The growth caused complete obstruction of the duct and resulted in the death of the patient four months after the first symptoms appeared.

Clinical History: is as follows: Male, aged 44, was admitted to the M. G. H. under Dr. Shepherd's service, in the spring of 1907. The first symptoms began in May in the form of cutaneous itching, especially of the feet at night. Later, jaundice developed which grew progressively worse. This condition was associated with great weakness and depression and some loss of weight. Dr. Shepherd operated upon the case in July and found nothing to account for the biliary obstruction. A fistula was established which subsequently discharged bile and dark concretions, but at no time stones. The urine always contained bile. The patient died early in September.

Autopsy: Body of a fairly well developed and nourished white adult male. The skin, conjunctivæ and mucous membranes present a deep lemon-yellow discoloration. There is slight *lividity* over the dependent parts. Rigor mortis is present. Pupils: left 4 m.m., right 2 m.m. No œdema. On the left side of the face is a large fluctuating mass which contains a fistulous opening that discharges thin creamy pus. On the right side of the abdomen in the region of the gall bladder there is a linear scar 10 c.m. in length in which are three fistulæ. Bile may be expressed from the larger opening.

Abdominal Cavity: The parietal and visceral peritoneum is deeply bile stained. Appendix 12.5 c.m. in length, retrocæcal and " S " shaped

for its outer third. Mesenteric lymph nodes are not enlarged. Diaphram: left 5th rib, right 5th rib. About the gall bladder are numerous old fibrous adhesions which wall off the site of operation from the greater peritoneal cavity. On separating the adhesions the bladder is found firmly attached to the left parietal wall.

Gall Bladder and Ducts: These were opened and carefully inspected in situ. The bile passage-way from the bladder to the gut describes a course shaped like the figure "S," which evidently has resulted from the adhesions following the cholecystotomy.

The common duct is greatly dilated throughout its extent, and admits readily the index finger. The biliary passages in the liver are also dilated and tortuous. The mucous membrane of the cystic and common ducts, though deeply bile-stained are apparently normal except for a marked fenestration of the inner aspect (the result of long continued distension).

In the lower part of the common duct including Vater's diverticulum the lumen is completely filled with a soft dull black fungoid mass which is intimately associated with the duct wall. At first it would appear as though the mass was altered blood or inspissated bile; however, on more careful observation it is found to consist of innumerable flattened finger-like projections. These tiny fungoid projections separate out distinctly when submerged in water, except at the basal part where they apparently spring from a common bed. The tumour is so soft that a probe is easily passed through it into the duodenum. The Papilla and the oblique passageway in the wall are patent and normal.

The pigmented growth completely fills the ampulla of Vater and extends upward in the common duct for a distance of 2 c.m. The upper and lower limitations of the tumour are sharply defined by the superimposed villous-like projections which overhang the edge as so many closely apposed loops.

A careful search fails to reveal anything in the nature of this tumour elsewhere in the body, though the eye, skin and central nervous system were carefully examined.

Microscopic: Parts of the tumour including the wall of the duct were fixed in Zenker's fluid, alcohol and formalin, embedded in paraffin and stained with eosin-methylene-blue. Mallory's connective tissue, phosphotungstic-acid-Hæmatoxylin, and fibroglia stains were employed for the differentiation of special tissues. The method to determine the presence of iron pigment failed to give results.

The microscopic sections show that the tumour is composed of alveolar masses of large polyhedral cells. The nuclei are oval and vesicular

and the cell protoplasm is filled with large and small brownish-black pigment granules. The cells vary greatly in size and have a well defined alveolar arrangement which apparently springs from the mesothelium of the sub-mucous coat. Long villi composed of these pigment bearing cells push forward between the glands of the tunica propria and project far into the lumen of the duct. The tumour also infiltrates and extends in an irregular manner through the muscular coat. Mytotic figures are fairly numerous. Scattered throughout the growth are many phagocytic cells for blood pigment. The glandular epithelium in places contain melanin granules.

Remarks: This case has a two-fold interest:—First from the histopathological aspect because of its unique situation and the fact that we are dealing with a tumour containing pigment cells far removed from where this type of cell normally exists; secondly, owing to the complete obstruction to the common bile passageway, simulating cholelithiasis, the case is of extreme interest surgically.

The growth, it would seem, is primary in the common duct since the most careful search of the cutaneous surface and central nervous system revealed nothing which would indicate its metastatic nature. It is, however, borne in mind that there is the possibility of a dislodgement at some time of one or more pigment bearing cells from a normal situation such as the choroid, which has subsequently become arrested at a distant point where the cells divide and give rise to a neoplasm. In support of this view we have the well-known example of thyroid metastasis in remote parts of the body though primary growth in the glands escapes the most careful search.

I am fully aware how difficult it is to believe that a pigmented tumour could arise from cells in this location, and I make no attempt at present to explain the occurrence. The most natural criticism would be that the primary locus has escaped the search, which fact is possible and would seem probable in the light of our present knowledge of chromatophora.

This tumour is unique to say the least, and as far as I know, is the first of its kind to be reported. A full account of the case will appear in the literature later.

PANCREATIC CYST.

BY

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This case I report because of its rarity and also because of the clinical interest which obtains particularly in regard to diagnosis. The patient, a young man, aged 30, came to my office in October with the request for

an operation on his stomach. On enquiry I found he had been told that he had cancer. The patient was born in Nova Scotia, was a glass-blower by trade, though had worked at other labouring trades. A year ago last April he began to vomit his food and to suffer from distress in his stomach. In July jaundice developed and became quite marked accompanied by dark urine and clay-coloured stools. About this time he also noticed developing in the left hypochondrium a palpable visible prominence which was greater after a meal. He felt better after vomiting. In two or three weeks he recovered from the jaundice and went back to work eating heartily whatever was put before him, digesting his food well and feeling well. In May, 1907, the vomiting again returned and he began to lose weight, something like 75 pounds in five months. About July he was admitted to the Montreal General Hospital under Dr. Lafleur who found this palpable mass in the left hypochondrium which gave the impression of a tense viscus rather than a solid growth. Analysis of the stomach contents showed absence of hydrochloric, lactic and butyric acids. He was under treatment for a time, discharged and readmitted in September again complaining of loss of weight and vomiting every day, in fact could retain but little food, which caused distress, discomfort and distension only relieved by vomiting; did rather better with starchy foods than with solid meals. A test meal withdrawn three hours after gave 7 oz., contained many lumps of undigested food resembling rancid butter. Lactic acid was present in abundance also butyric. Acidity was 4.5; no peptonization when acidified. No free hydrochloric acid.

These findings led to a diagnosis of carcinoma of the stomach. The man developed an unusual desire for operation and in October he was admitted to the surgical wards and I consented to operate, first, because of the extreme loss of weight, more than one would expect in carcinoma; second, the mobility of such a large tumour. It seemed rather odd that this carcinoma should develop to such a size in so short a time and still be as freely movable under the hand as it was with each movement of the diaphragm. Again it was perfectly smooth, not nodular like what one would expect in a carcinoma of that size. An exploratory incision was done and on opening the abdomen in the epigastric region it was rather difficult to make out at first what one had to deal with. The liver, gall bladder and bile passages were palpable and visible; the colon and the small intestines appeared normal. There were no enlarged glands. On passing up over what I supposed to be the stomach I came across this hard, smooth, tense mass covered with dilated veins. It seemed evident

that this was clearly a retroperitoneal condition. I put a needle in and withdraw about 40 oz. of turbid fluid. In withdrawing it I brought the cyst wall out to the surface and thus emptied it. The stomach came into view. It lay below the tumour and was compressed into an organ which looked like the colon and had not at all the appearance of the normal stomach. It was now quite clear that I was dealing with a cyst of the tail of the pancreas, coming forward above the stomach. On examination the fluid was found to be slightly alkaline with a specific gravity of 1008 and to digest albumin. This made it pretty clear as to diagnosis. Of course as Jaksch has pointed out there are other peritoneal fluids which may digest albumin and it is also clear that some pancretaic cyst contents have not always digested albumin.

The cyst was anchored and drained and is discharging very little now. Another interesting feature was that I could not find any evidence of malignancy here. The analysis of the stomach contents made recently showed still absence of hydrochloric acid. The patient has gained from the day of operation up to the present about 38 pounds.

Dr. Amrstrong, in discussing this case, remarked that there was no history of trauma. The jaundice appeared about the time that the prominence in the epigastrium was noticed and it seemed very natural to associate the one with the other. The gall bladder and passages were normal and there was no evidence of adhesion about the parts, old ulceration, constriction or narrowing and no calculus was felt. It is possible that it pulled over and displaced the duodenum sufficiently to temporarily obstruct the common duct. This may be a possible explanation for the jaundice. The appearance at the operation showed this to be a very hard tense cyst and at first it seemed impossible to get a place free of blood vessels where one could apply retention forceps or insert a needle. Extreme loss of weight is common in pancreatic cyst and enormous enlargement of vessels is also quite common over these cyst walls.

A CASE OF SARCOMA OF THE INTESTINES.

BY

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Sarcoma of the intestine is very rare and this case was only recognised by the pathologist after the operation. The patient was a man, aged 60, who was brought to me from the country with the history that 24 hours previously when riding on a reaping machine he was seized with

sudden pain after a slight jar when going over a rough piece of ground. He went home with some difficult and vomited several times. He was in great pain and Dr. Cooper who was called in recognised the condition as serious and brought him into town. I saw him soon after and he then had all the symptoms of peritonitis; general distension of the abdomen, rigidity of the muscles and great tenderness of the lower zone but nothing could be made out on this account as to the locality of the lesion. Operation was advised and agreed to and he was immediately placed under ether. An incision was made in the median line below the umbilicus and at once there gushed out a quantity of stinking pus with flakes of lymph. This almost filled the abdomen. On examination I found one of the coils of the intestine collapsed and on lifting it out it immediately filled with air. A perforation was found at the base of a diverticulum near the ileo-cœal valve. This diverticulum, however, felt hard and was not like the ordinary diverticulum of the intestines. It was about the size of an almond and near the mesenteric border, and just immediately below it was a pin point opening through which the contents were escaping. I made an elliptical incision and took away the diverticulum, also the pin point opening and sutured the intestine in the ordinary way with Lembert sutures. The abdomen was thoroughly washed out with saline solution and a cigarette drain left in 24 hours. The pulse was never over 100 and the condition very good; temperature rose to 100. He went on to complete recovery. That was on August 10th, 1906 and he is still alive today (January 1908) and in good health with no signs of recurrence. On pathological examination it was found that this little diverticulum was really a small celled sarcoma growing from the wall of the intestine outwards and stretching it at this point rendering it very thin so that the sudden jar received while riding on the reaping machine was sufficient to rupture the thin wall around the growth and allow the intestinal contents to escape. This is a very unusual condition and I have heard of but one other case. The mass was no bigger than the last joint of one's little finger and exactly like a diverticulum though near the mesenteric border. Of course had there been no rupture the tumour would have gone on and extended so it was perhaps fortunate that operation was necessitated at so early a stage of the disease.

THE OPHTHALMO-TUBERCULIN REACTION.

BY

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Within the last year two additional tests for tuberculosis by means of tuberculin have been placed at our disposal, so that we now have subcutaneous injection of the old tuberculin or some of its modifications, the cutaneous scarification and inoculation of the same, known as von Pirquet's test, and lastly, the ophthalmic or conjunctival reaction, known as the Calmette or Wolff-Eisner reaction.

At the meeting of the Berlin Medizinische Gesellschaft, on May 8th and 15th, 1907, von Pirquet reported the results which he had obtained by using tuberculin by the cutaneous method. In the discussion which followed, Wolff-Eisner took the opportunity of placing before the society the fact that, being led on by some experiments as to the hypersensitiveness of the conjunctiva to pollen, in hay fever, he had also been experimenting with tuberculin and its reaction in the conjunctival sac. He had made use of a 10 per cent. solution of the old tuberculin (T. A.), but his conclusions were at that time unformed.

(1) Calmette of the Pasteur Institute at Lisle, reported in June, 1907, the result of putting a drop of 1 per cent. tuberculin in the conjunctiva of tuberculous patients ; among the first being sixteen tuberculous patients who gave a positive reaction and nine controls who did not react. This was the first publication on the test, hence the name, Calmette's reaction; possibly actual priority belongs to Wolff-Eisner.

(2) Citron was the first in Germany to publish any results, and since then a whole host of publications have filled the literature of France, Germany, Great Britain and America. In spite of this fact it is most difficult to come to any accurate conclusion as to the value of the test owing to certain fallacies which may influence the result. These possible fallacies are:

1. Differences in performing the test and judging the reaction.
2. Differences in the tuberculin used, in its preparation, its strength, and its freshness.
3. The difficulty of knowing whether certain apparently healthy individuals who react, are actually tuberculous.
4. Our lack of knowledge concerning the nature of the reaction so that we are unable to allow for other conditions which may modify the test or render it negative.

Calmette in his original communication fearing that the glycerine and bouillon extractives in the old tuberculin would prove too irritating to the eye, precipitated the old tuberculin with alcohol, washed the precipitate, dried it and dissolved it in distilled water 1 to 100. Citron first showed that the elaborate preparation was unnecessary and advised a 1 per cent. solution of Koch's old tuberculin in normal saline or boric acid.

([3]) Eppenstein, indeed, went so far as to show experimentally that a 2 per cent. solution of glycerine was unirritating to the conjunctiva. This difference in the preparation of tuberculin has, however, persisted, so that to-day we find the French school adhering to the Calmette preparation, while the German school uses the unmodified T. A. Undoubtedly some discrepancies in the results published are due to this difference, but another source of error is to be found in the fact that some of the products put on the market as "Calmette's tuberculin," are much too strong (*e.g.,* Höchst). Again, the percentage to be used has not as yet been established, so that while one observer reports tests made with a ([17]) .33 per cent. Calmette's tuberculin, another uses a ([18]) 4 per cent. T. A. Freshly prepared tuberculin ([10]) is said to be another requisite.

Experience has, however, by this time shown that the most useful strength should be in the neighbourhood of a 1 per cent. solution. With the dried tuberculin (Calmette) it is not necessary to go higher, but with the T. A. the use of 2 per cent. solution after the 1 per cent. fails is allowable. In children and patients likely to react excessively, it is wiser to start with a ½ per cent. solution. In America up to the present the test has been made along the lines indicated by Calmette, *i.e.,* with the dried tuberculin.

That differences in the performance and interpretation of the reaction must occur, is certain. Two important points are, to be sure that the conjunctivæ are healthy before inoculation, and to see that the tuberculin is properly distributed about the sac and not winked or wiped out. A very real difficulty lies in proving apparently normal individuals, who react, to be tuberculous. As may be seen from all statistics, a certain proportion of healthy individuals react. Are these tuberculous? Our only way of proof lies in making use of a hypodermic of T. A. (or by subsequent history or post mortem examination). The former has to a very large degree confirmed the test ([14]) ([15]) ([17]) ([18]), as may be seen from our own results. Further, the cutaneous reaction of von Pirquet has, according to Wolff-Eïsner and Stadelmann ([16]), also confirmed the ophthalmo-reaction. Both the cutaneous and subcu-

taneous tests, however, give a higher percentage of reactions than the ophthalmo-reaction as occurring only where an active lesion is present, whereas both other tests react where a "healed" or inactive lesion exists. It is noteworthy that a tuberculin injection will cause the ophthalmo-reaction even if performed subsequently in a healthy subject (5) (16). Most animal work (4) has been performed along these lines, but apparently with others, as in our experience, animals do not lend themselves to this test.

This brings us to a consideration of the nature of the test. It depends evidently on a hypersensitiveness of the conjunctiva in tuberculous individuals whereby it reacts to an agent (tuberculin) which is unable to cause a reaction in healthy subjects. This tendency to reaction or hypersensitiveness evidently depends on the formation by the tubercle bacillus of antibodies in the organism. It is therefore not unexpected to find that tuberculin subcutaneously forms these same antibodies, and that an inoculation in the eye sensitizes it to a second test. An interesting and important point here raises itself. Why do certain cases fail to react when, as we shall presently see, they can be proven tuberculous? A definite answer is wanting, but the probability is, perhaps, as follows:

According to our own studies and those of many others most cases where reactions fail in tuberculous subjects are either moribund or rapidly advancing cases (2) (14) (18). Such cases frequently fail to react to tuberculin subcutaneously. Apparently the organism is overwhelmed by the toxines, no antibodies are formed and no reaction can take place. Certain cases will, however, react one day and fail another, or *vice versa*. If it be not amiss to borrow Wright's phraseology, may not this depend on the presence of the positive or negative phase.

Consideration of these facts leads some observers to assign a prognostic value to the reaction (8). A prompt, smart reaction speaks for tuberculosis, but also for a good reacting or resisting power, the absence of a reaction in an individual known to be tuberculous speaks for loss of resisting power (2), *i.e.*, a bad prognosis. The significance of a delayed reaction (over thirty hours) probably means the presence of some old, latent focus.

In our series of cases the test was performed as follows. The patient's conjunctivæ were first examined by pulling down the lower lids. These being normal, or any difference being noted, a single drop (.025 cc.) of a ½ per cent., 1 per cent. or 2 per cent. solution was placed by means of a pipette in one conjunctival sac and well distributed, care being taken that it was not pressed out by winking or rubbing. The reaction begins in three to six, or six to twelve hours later, with a dilatation

of the pupil, slight lachrymation and reddening of the caruncle; usually in twelve to twenty-four hours it is at its height. It lasts from thirty-six to forty-eight hours or longer; severe cases have been reported lasting a week or more. Swelling of the lids and photophobia may result. We have adhered to the general scheme of recording results, viz.:—

0 No difference in either conjunctiva.
? Slight difference, especially in caruncle.
+ Distinct redness of caruncle and palpebral conjunctiva.
++ Distinct redness of palpebral and bulbar conjunctiva with lachrymation and formation of fibrin.
+++ Œdema of lids and photophobia. (Chemosis.)

Through the kindness of Dr. Baldwin, of Saranac Lake, N.Y., we have made use of a tuberculin identical with that recommended by Calmette ([6]), but in our later cases we have used a 1 per cent. and 2 per cent. solution of T. A. in .9 per cent. saline solution ([2]) placed in tubes and boiled seven minutes. The differences noted were slight, and now in favour of one, now of the other. In general the unmodified took longer to cause a reaction, though in one case this was evident within two hours. In another it did not appear till after thirty hours. We have had no very severe reactions, and only in one or two instances have we had to use an eye wash. Beyond a feeling of grit in the eye in a few cases no pain was complained of in any instance. In no case could we be certain that the test caused a constitutional reaction as is reported by writers.

According to our observations the reaction is a distinct inflammation, a conjunctivitis with formation of pus and fibrin; no pathogenic bacteria were isolated (McKee).

With few exceptions the tests have been made in the medical and surgical wards of the Montreal General Hospital, and we desire here to express our thanks to the members of the attending staff, who have interested themselves in this work and to those of the resident staff who have assisted us in the following reactions.

We have made the test in 156 individuals, in many cases twice, as it is our custom to begin with a ¼ per cent Calmette or 1 per cent. T. A., and should no reaction follow to confirm it by a 1 per cent. C., or 2 per cent. T. A. in the other eye after forty-eight hours interval. The cases include pulmonary tuberculosis, pleurisy with effusion and various surgical aspects of tuberculosis. The controls include a number of healthy individuals, but consist for the most part of patients suffering from other disease.

TABLE I.

Diagnosis.	Total Cases	Tbc. Bacilli present	P.M. Confirmatory	Hypo. T.A. positive	Microscopic positive	Clinical positive	Reaction					Tuberculin				Remarks
							+	++	+++	?	0	Calmettes Modified		T.A. Unmodified		
												½ p.c.	1 p.c.	1 p.c.	2 p.c.	
Pulmonary Tuberculos.	31	17	1	3	....	10	16	8	3	....	4	9	10	10	2	Of the 4 negative cases 3 were moribund and 1 very adv'nced
Pleurisy Effusion	10	3	....	....	....	7	5	1	....	2	2	2	2	5	1	
Tuberculous Peritonitis	2	....	....	....	2	....	1	1	....	....	....	1	1	....	....	
Tuberculosis of the hip	5	....	....	....	....	5	1	3	....	....	1	3	....	1	1	
Tuberculosis of the knee	3	....	....	1	....	2	3	....	....	....	....	1	2	....	....	1 positive case gave no reaction to 5 m.g., T.A.
Tuberculosis of the elbow	1	....	....	....	....	1	1	....	....	....	....	....	....	1	....	
Tuberculous Osteomyelitis incl. caries of the spine	8	....	1	2	....	5	6	....	....	....	2	3	5	....	....	1 very old was negative also one very weak.
Tuberculosis of the finger	1	....	....	....	1	....	....	1	....	....	....	....	1	....	....	
Tuberculosis of the kidney	4	....	....	1	3	....	2	2	....	....	....	2	2	....	....	
Tuberculosis of the testis	1	....	....	....	1	....	....	....	....	....	1	....	1	....	....	
Tuberculous adenitis	3	....	....	....	3	....	3	....	....	....	....	1	1	1	....	
Fistula in ano	1	....	....	....	....	1	....	....	1	....	....	1	....	....	....	
Total	70	20	2	7	10	31	39	16	4	2	10	23	25	18	4	
Cases doubtfully tuberculous	7	....	....	2	....	5	1	....	....	....	6	2	1	2	2	
Cases of normal individuals and non-tuberculous diseases	79	....	3	13	....	63	1	3	1	....	74	8	51	5	15	
Total	156	....	....	....	....	....	66				....	33	77	25	21	

It was possible to confirm our diagnosis of tuberculosis in some cases by finding bacilli, animal inoculation, postmortem exxamination, the examination of tissue removed at operation or by the use of a hypodermic of tuberculin. Classified thus, we find that:—

Thirty-nine cases of tuberculosis (confirmed) gave thirty-four positive and five negative reactions, or 87.4 per cent. of reactions. Of the five not reacting, four were advanced or moribund cases.

Thirty-one cases of tuberculosis (clinical) gave twenty-four positive and five negative and two doubtful reactions, *i.e.*, of seventy tuberculous cases 85.7 per cent. reacted.

Our controls, on the other hand, including cases of carcinoma, typhoid, acute rheumatism, fractures, osteomyelitis, and various minor surgical lesions show that of seventy-nine cases, apparently not tuberculous, five gave a positive reaction, or 6.3 per cent.

In seven doubtful cases, one reacted, one was questionable and five were negative.

As yet very few figures are at hand to show the value of this reaction in surgical cases, it is, therefore, interesting to note that in

Twenty-nine surgical cases of tuberculosis (clinical), twenty-five were positive and four negative, an error of 13.7 per cent.

Thirty-one pulmonary cases, twenty-seven positive, four negative; all advanced or moribund cases.

In ten cases of pleurisy with effusion, six were positive, two negative, and two doubtful.

In accordance with the scheme outlined above, forty-one cases may be described as +, nineteen as ++, and four as +++, and two as doubtful.

In the cases tested with the Calmette preparation, fifty-one were tuberculous, with six failures (12 per cent.), and fifty-nine were non-tuberculous, with four reactions (6.8 per cent.); whereas of those tested with T. A., twenty-six were tuberculous, with five failures (20 per cent.) and twenty were non-tuberculous, with one reaction (5 per cent.). The number of cases is, however, too small to permit of any accurate conclusion.

In twenty-three cases we have controlled our findings with T. A. subcutaneously. In thirteen non-tuberculous, both ophthalmo and hypodermic methods were negative, in seven tubeculous cases both were positive. In two instances we got an eye reaction, in one a hypodermic reaction but no eye reaction. The first two are to be explained as we used an old solution, but the last case is still an enigma.

In our table it will be seen that five of our controls reacted (6 per cent.), and ten of our tuberculous cases failed to react (14.3 per cent.). For our controls we can come to no other conclusion than to regard them as probably having some slight focus of tuberculous disease indiscoverable to ordinary methods. Of the tuberculous cases which did not react it is noteworthy that of the ten, five were moribund or advanced or very anæmic patients. For one case, however, of tuberculosis of the testis we can offer no reason for failure to react. Perhaps a stronger solution should have been tried.

It has been brought forward that the reaction is not specific (9), as cases of syphilis, actinomycosis, typhoid and acute rheumatism (Kraus) have responded to it. In our experience but one case of typhoid gave a doubtful reaction, and he had at the time some conjunctivitis, so that our evidence would negative that point.

Before taking up a brief review of the literature on this test it may be well to note that of late there has been a certain reaction among ophthalmologists against it. Apparently certain eye conditions of conjunctivitis, iritis, corneal ulcer, keratitis and sclero-keratitis, not to mention tubercular disease of the eye, have been rendered worse through its use. For the present, therefore, these should serve as contra-indications to the test. They are its only contra-indications.

In the accompanying table it will be seen that we have collected 4,219 cases (from the literature chiefly of France, Germany and United States), where this test has been carried out. There are undoubtedly many omissions, but also, perhaps, some repetitions. Of this number 1,675 cases were tuberculous, with 1,426 positive and 249 negative reactions (14.8 per cent. error). 557 were questionable or suspected, with 289 positive and 269 negative results; while 1,987 cases were not tuberculous, with 169 positive and 1,818 negative reactions (8 per cent. error).

We have already spoken of the fallacies of such statistics, but the percentage of error keeps very close to 14 and 8 per cent. in each series. While an open mind is still the only attitude to maintain in reference to this reaction, we feel that a test so easy of performance, which has so few contra-indications, is so simple in its interpretation, and where a prompt, sharp reaction occurs, so certain an index of tuberculosis, deserves a wider and more extensive trial.

TABLE II.

	Total	Tbc.	+	—	Tbc. ?	+	—	Not Tbc.	+	—	
Baldwin	136	54	52	2	23	9	14	57	17	40	
Kobler	174	169	161	8	5	5	0	1	1	0	
Schenk and Seyffert	100	28	27	1	20	15	5	52	26	26	
Citron (July, 1907)	90	31	25	6	14	11	3	45	1	44	
Andeoud	31	13	12	1	3	1	2	15	—	15	
Eppenstein	247	85	60	25	89	38	51	73	4	69	
Cohn	310	86	60	26	32	23	9	192	10	182	Collected by Schroeder and Kaufmann. (13)
Calmette, etc	198	111	108	3	—	—	—	87	1	86	
Lenhartz	112	38	33	4	63	23	40	11	4	7	
Métraux	68	15	14	1	11	9	2	42	2	40	
Franke-Katjen	51	6	6	—	12	9	3	33	4	29	
	1885	974	859	115	284	146	138	627	80	547	
Calmette, Belton, Painblau and Petit	115	63	63	—	—	—	—	32	....	52	
Citron	81	25	19	6	11	8	3	45	1	44	
Grasset and Rimbaud	31	13	12	1	3	—	3	15	1	14	
Derchaud	21	8	8	—	—	—	—	13	—	13	
Prouff	18	12	12	—	—	—	—	6	—	6	
Des-Plats	9	4	4	—	—	—	—	5	—	5	
Helipee and Hul	22	14	14	—	—	—	—	8	—	8	Collected by Smithies and Walker. (5)
Griiet	9	7	7	....	....	....	....	2	....	2	
Desbonnets	4	2	2	....	.. .	....	....	2	....	2	
Letulle	46	19	19	—	—	—	—	27	....	27	
Montagnon	27	14	12	2	5	5	—	8	—	8	
Aubaret and Magne	15	11	11	—	4	3	1	—	—	—	
	401	185	176	9	28	21	7	188	2	186	
Floyd and Hawes	231	52	38	14	92	26	46	101	16	85	
Smithies and Walker	242	29	29	6	15	10	5	198	2	196	
Blum	250	26	21	5	5	3	2	219	31	188	
Schroeder and Kaufmann	77	48	43	5	9	4	5	20	12	8	
Wolff-Eisner and Stadelman	276	64	34	30	20	12	8	192	—	192	
Schenk	100	8	8	0	29	14	15	63	9	54	
Levy	330	41	35	6	54	32	22	235	6	229	Collected by ourselves.
Graupp	100	61	44	17	23	11	12	16	—	16	
Citron	233	115	86	29	18	10	8	100	6	94	
Eisen	110	82	53	29	—	—	—	28	5	23	
	1945	526	391	135	245	122	123	1172	87	1085	
Total all series	4219	1675	1426	249	557	289	268	1987	169	1818	

(1) Calmette. Presse Médicale, June 19, and July 13, '07.
(2) Citron. Sitzung der Berlin Med. Gesellschaft, 24 VII, '07; Berlin Kl. Woch., 33, '07; Deutsch Kl. Woch., 3, '08.
(3) Eppenstein. Med. Klinik, '07, 36.
(4) Calmette, Breton and Petit. Compt. rend. d. l. Soc. Biol., T. 63, '07, 28.
(5) Smithies and Walker. J. Am. Med. Ass., Jan. 25, '08.
(6) Baldwin. N. Y. State Journal, Oct., '07.
(7) Schenck and Seiffert, Munch. Med. Woch., 47, '07.
(8) Lemaire. Soc. d. Biol., Oct., '07, 12 and 19.
(9) Glehn. Deutsch Med. Woch., '08, 8.
(10) Gaupp. Deut. Med. Woch., '08, 7.
(11) P. Eisen. Beitrage z. Klin. d. Tuberkulose, '07, Hf. 4.
(12) Kohler. Deut. Med. Woch., '07, 50.
(13) Schroeder and Kaufmann. Munch. Med. Woch., '08, 4.
(14) Blum, *ibid.*
(15) Schenck. Deutsche Med. Woch., '08, 2.
(16) Wolff-Eisen and Stadelman. Deut. Med. Woch., '08, Jan, 30.
(17) Floyd and Hawes. J. Exp. Med., '08, Feb.
(18) Levy. Deut. Med. Woch., '08, 3.
(19) B. M. J., Oct. 19, '07.

The Rockefeller Institute for Medical Research purposes to award for the year 1908-1909 a limited number of scolarships and fellowships for work to be carried on in the laboratories of the Institute in New York City, under the following conditions:

The scholarships and fellowships will be granted to assist investigations in experimental pathology, bacteriology, medical zoölogy, physiology and pharmacology, physiological and pathological chemistry and experimental surgery.

They are open to men and women who are properly qualified to undertake research work in any of the above mentioned subjects and are granted for one year.

The value of these scholarships and fellowships range from eight hundred to twelve hundred dollars each.

It is expected that holders of the scholarships and fellowships will devote their entire time to research.

Applications accompanied by proper credentials should be in the hands of the Secretary of The Rockefeller Institute not later than April 1st, 1908. The announcement of the appointments is made about May 15th. The term of service begins preferably on October 1st, but, by special arrangement may be begun at another time.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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Remittances, advertisements or business communications are to be addressed to the Montreal Medical Journal Co., Box 273 ; all others to the Managing Editor, 216 Peel Street, Montreal. All communications intended for insertion in this Journal are received with the understanding that hey are contributed exclusively to this Journal. A limited number of reprints of articles will be furnished to authors at cost price, if a request to that effect accompany the manuscript.

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THE UNDESIRABLE IMMIGRANT.

There are many different circumstances arising every day in Montreal which drive home upon our minds the fact that we are getting a great deal of moral and physical riff-raff from Europe. This is not a reflection upon the decent and healthy immigrant, but upon the laxity of rule that allows the "undesirable" to land. With the question of financial fitness we have not to do at present, although we do know a case where an inland bank telegraphed a large amount of money to Quebec to be loaned to immigrants to pass the portal. What we are here concerned with is the question of a medical examination that shall be sufficiently searching to detect advanced tuberculosis, and mental incapacity, and such important disorders. We are in the position of having seen in a few days in Montreal, three cases: two of these were far gone in consumption at the time of their landing, and are at the public charge at present. The third is a cripple, of such a great degree of deformity as to be quite unsuited to anything but a life of immobility in a tailor's shop, where he will be certain to end his days at no far-distant time. The country has as good a right to reject such immigrants as has the insurance company to refuse to insure them. This is no question of sentiment, for we yield to no one in our admiration for the cripple who makes a brave fight against his disabilities; but

it is a question of who are to be the fathers of the future children of Canada, and if we hope to do our duty by the country, it is part of our duty to see that we have as great a freedom as possible from preventible disease.

It is not beyond our province to say that the medical inspection of immigrants at our ports is not adequate: the steamship and railway companies are eager to pass their passengers on as rapidly as possible, and there seems no possibility of having them kept long enough to allow a thorough examination of them to be made; the solution does not seem to lie upon this side of the water, but upon so rigorous an examination on the other side that such passengers would not be allowed to begin their journey. Upon first cabin steamship passengers this ought not to be obligatory, unless it were plainly evident that an "undesirable" was paying the extra money to travel among a class to whom he obviously does not belong.

We know that this will cost money, for it will mean the employment of thoroughly capable physicians who will devote adequate time to the work; to undertake such stringent measures will also exclude the chance traveller who comes to Canada "in search of health"; in the case of a consumptive, travelling in Canada is not good treatment, and his lot will be no worse, rather better. If we could keep a hundred consumptives a year out of Canada, such a movement would financially justify itself, if such justification were needed.

Dr. F. A. L. Lockhart, 38 Bishop Street, chairman of the Obstetrical and Gynæcological Section of the Canadian Medical Association, has furnished us with the following memorandum: "As you are doubtless aware, the Canadian Medical Association is to meet in Ottawa on June 9th, 10th, and 11th, and a large attendance is expected. Several new sections have been added, among others one devoted to Obstetrics and Gynæcology. This being a new departure, it is sincerely hoped that all who are especially interested in either of these subjects will do their best to make the meeting of the section a success and so justify its formation. In order to attain the above result, it will be necessary to arrange the programme with care, and the committee having this in hand would like to have the names of all those wishing to contribute papers or case-reports handed in as soon as possible. While a certain number of most interesting papers have already been promised, there is room for a few more, and it is hoped that intending contributors will kindly send in their names, together with the

titles of their papers, either to the secretary, Dr. D. Patrick, 4174 St. Catherine Street, Westmount, or to myself."

THE McGILL MEDICAL JOURNAL CLUB.

The annual meeting of this club, which exists for the purpose of supplementing and aiding the Medical Library of McGill University in the matter of scientific journals, was held on February 7th, in the rooms of the Montreal Medico-Chirurgical Society, at five p.m. Dr. E. W. Archibald, the President, being absent, Dr. A. A. Robertson took the chair. There were present, Drs. Robertson, Nicholls, Morrow, and Klotz. The Secretary, Dr. A. G. Nicholls, presented a brief report as follows:—

Mr. President and Gentlemen,

Your officers, consisting of Drs. Archibald, Robertson, Morrow, and Nicholls, who constitute the executive of the McGill Medical Journal Club, beg to report a satisfactory year. They have met at irregular intervals as business has called them together, and consider that the affairs of the club are now running smoothly and harmoniously. This is in large measure due to the efficient assistance of Miss Charlton, the Librarian of the Medical Faculty, to whom our hearty thanks are due. Our membership is now 59, or about the same as last year, and our financial position, as the books of the Treasurer will show, is sound.

We have now on our list twenty-one magazines, consisting of some of the leading journals in the various departments of medicine. These are at all times at the disposal of the members. Your committee has been conservative in its views, and with an eye to possible contingencies, has kept well within its income. Accordingly, we have added during the year only two journals, Biochemisches Centralblatt, and Comptes Rendus de la Société de Biologie de Paris. These will probably be increased in the future. The only unusual expenditure that has been authorized was a small amount to replace some twenty numbers of current magazines which were damaged in the late fire at McGill, in order that our fyles may be complete. The current journals are now to be found upstairs in the Redpath Library, where a special room in connection with the temporary quarters of the Medical Faculty Library, has been assigned for their accommodation. Members can get all information in regard to them by applying to Miss Charlton. The committee is at all times open for suggestions as to journals to be acquired,

which will be carried out, in so far as the general welfare and the financial position will permit.

A. G. NICHOLLS,
Secretary.

The election of officers for the year 1908 was proceeded with and resulted as follows:—President, Dr. E. W. Archibald; Vice-pres., Dr. A. A. Robertson; Sec., Dr. A. G. Nicholls; Treas., Dr. Campbell Howard. Executive Board:—The officers, Drs. Morrow, Klotz and Chipman.

It was decided to inaugurate a more active policy in the direction of attempting to interest more physicians in the object of the Society and thereby increase its usefulness. A better method of collecting the annual dues was discussed.

The treasurer's statement is appended.

TREASURER'S REPORT.

Dr.		Cr.	
Balance on hand November 1st, 1906	$ 58.96	Journals	$ 74.66
Subscriptions	98.00	Stamps, stationery, etc	3.00
Interest	1.63	Printing	7.00
		Typewriting	1.10
		Special Delivery	.55
			$ 86.31
		Balance on hand	72.28
	$158.59		$158.59

ASSETS.		LIABILITIES.	
Balance on hand	$ 72.28	Journals unpaid to December 31, 1908	$ 87.25
Subscriptions due December 31	40.00	Excess of assets over liabilities	$ 25.03
Total	$112.28		$112.28

WILLIAM S. MORROW,
Secretary.

Reviews and Notices of Books.

THE HISTORY OF THE STUDY OF MEDICINE IN THE BRITISH ISLES. The Fitz-Patrick Lectures for 1905-6 delivered before the Royal College of Physicians of London. By NORMAN MOORE, M.D., Cantab., Fellow the Royal College of Physicians, Physician to St. Bartholomew's Hospital. With eleven collotype plates. Oxford: at the Clarendon Press, London, Edinburgh, New York and Toronto; Henry Frowde.

The first of these lectures treats of Medical Study in London during the Middle Ages, and of John Mirfield, a physician, who lived in London in the reign of Richard III. The second lecture treats of the reading

and general attainments of physicians from the foundation of the Royal College of Physicians, in 1518, to the beginning of the eighteenth century. In the third and fourth lectures the author has shown how that part of medicine which consists in the precise observation of patients grew up in England, Scotland, and Ireland; and he has particularly considered the effect of the works of Mayerne, Glisson, and Sydenham upon that study in England, and the influence of Boerhaave upon it in Scotland and Ireland. In the Appendix he has printed from the manuscript in Mayerne's hand in the British Museum his notes on the health of James I, and the report on Queen Henrietta Maria which he drew up in 1641. These facts are taken from the preface to the book.

A considerable body of literature has grown up around the history of medicine, particularly in the German tongue, but it is only in recent years that English physicians have awakened to the interest which there is in the subject. Dr. Clifford Albutt applied his scholarship to the subject in an address which he delivered at the St. Louis Congress in 1904. This was republished the following year by Messers. Macmillan & Co., under the title of "The Historical Relations of Medicine and Surgery, to the End of the XVI Century." Dr. Norman Moore concerns himself with the history of medicine in England, and his book is the result of much diligent study at first hand. Not the least interesting part of the book is the transcription of Mayerne's Notes upon the health of James I. He must have been a difficult patient. We have it on the authority of his physician that, "The King laughs at medicine and holds it so cheaply that he declares physicians to be of very little use and hardly necessary. He asserts the art of medicine to be supported by mere conjectures and useless because uncertain." One who knows much of the history of medicine in those days will not be inclined to dispute the correctness of this observation.

The case report of Henrietta Maria, wife of Charles I, is also reproduced. It gives a new light upon that unhappy period, and yet it is questionable in how far one is justified in exposing to the world information which has come to the physician in the exercise of his calling upon the mental and physical condition of his patients, however eminent they may be. From reading this book one gets the impression of being down amongst the roots of English medicine which has flourished so amazingly during the past fifty years.

THE OPSONIC METHOD OF TREATMENT. B. R. W. ALLEN, M.B., B.Sc. (Lond.). H. K. Lewis, London, 1908.

In this book the author gives a brief sketch of the origin and growth of opsonic treatment from the time of Jenner in 1798, and points out

what opsonins are, their methods of demonstration in the blood, their formation, the effects of the injection of a bacterial vaccine, and describes other methods of raising the opsonic index. The technique of determining the opsonic index is very carefully gone into, as is the preparation of the vaccine, etc., and its diagnostic and prognostic value in health and disease is illustrated by cases. The employment of tuberculin with the management of tuberculous cases is then taken up and the remaining chapters are devoted to the management and treatment by the opsonic method of cases infected by the staphylococcus, streptococcus, pneumococcus, gonococcus, micrococcus catarrhalis, bacillus coli, and many other organs, as also in eye infections.

THE NERVOUS AND MENTAL DISEASE MONOGRAPH SERIES. Published by the Journal of Nervous and Mental Disease Publishing Co, under the editorship of SMITH ELY JELLIFFE, M.D., and WM. A. WHITE, M.D.

This series will consist of short monographs, translations, and minor text-books on subjects related to these specialties. It is purposed to issue them from time to time as the material becomes available. The editors are to be congratulated on this first issue, and one feels certain that if the future numbers keep up to the standard set, this series will have a merited success. The first of the series is a monograph entitled, "The Outlines of Psychciatry," by W. A. White, M.D.

This work is not expected to take the place of the larger text-books and no claim is made for exclusiveness or completeness, it is merely intended to afford a helpful guide to Dr. White's students so that they can follow his lectures easily and more satisfactorily. In spite of this unassuming preface this work should be read with profit by many students who may not have the pleasure of listening to Dr. White. The work opens with a short account of the nature of the human mind and the fundamental psychological processes, for the purpose of providing a proper foundation for what follows, placing the student in possession of certain general facts so that he will be better able to orient what he may observe.

The book is well written and reads easily, and can be heartily recommended to the student and young physician as giving a good working knowledge of this branch of medicine. After reading it carefully one feels disappointed that the neuroses, hysteria and psycasthenia have not been taken up as fully as the more marked forms of mental disease, but one can appreciate the fact that the limitations of such a work as this is intended to be, precludes this.

C. F. R.

PROTOZOA AND DISEASE. By J. JACKSON CLARKE. 138 pages and 219 illustrations. Modern 8vo. Price, $2.25. Published by Ballière, Tindall & Cox; Canadian Agents: J. A. Carveth & Co., Ltd., Toronto.

This is an interesting book and one worth reading. It is in many things, as its sub-title, "Part II.", indicates, a continuation of "Protozoa and Disease, Part I." by the same author (published in 1903 by the above named firm). The two books should really be read together.

In the first chapters of the volume under discussion, the author treats mainly of recent advances in our knowledge of tropical diseases and of the pathogenic flagellata. This part of the work is largely a compilation and, unfortunately, the author has, occasionally, not read the most recent papers nor gone to the original publications for his information. There are, consequently, minor errors in his statements.

The latter chapters, pages 76 to 136, are devoted to a rediscussion of the nature of certain rounded bodies in sarcomata first described some years ago by the author as probable sporozoa. Although the author expressly states his endeavour to make it quite clear "where observation ends and interpretation begins," the reader will find it especially difficult to do so in this part of the work.

It seems strange that only the briefest allusion is made to the work of those who see in the "cancer bodies" described by the author and others, extraordinary resemblances to certain normal constituents of reproductive cells in animals.

J. L. T.

TEXT-BOOK OF OPHTHALMOLOGY. By DR. ERNST FUCHS, Professor of Ophthalmology in the University of Vienna. Authorized Translation from the Eleventh German Edition. By ALEXANDER DUANE, M.D., Surgeon to the Ophthalmic Institute, New York. Third Edition, with 441 illustrations. Philadelphia, London and Montreal: J. B. Lippincott Company, 608 Lindsay Building, Montreal; Charles Robertson, Manager for Canada.

The translation of the last edition of this superb work of Fuchs's has been long looked forward to. Dr. Duane has certainly done his duty very creditably. It is almost impossible to make any criticism of a standard work so thoroughly recognized as being trustworthy and accurate. The author's character for accuracy is thoroughly borne out in this edition. The advances made since the publication of the last edition have been recognized and the subject matter brought thoroughly up-to-date. Dr. Duane has added a certain amount of new matter in

the sections on functional examinations, motor anomalies, refractions and operations; some of which certainly increase the value of the book. As a specimen of book-makers' art there is little left to be desired. The work cannot be too highly recommended to the general practitioner as well as to the specialist.

J. W. S.

The Practical Medicine Series; Nervous and Mental Diseases. By Hugh T. Patrick, M.D., Professor of Neurology in the Chicago Policlinic, and Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in Northwestern University Medical School. Series 1907. Chicago: The Year Book Publishers, 40 Dearborn Street.

The volumes of this series are always welcome, and the ten of which it is composed will form at the end of the year a valuable library. One who reads them will be well informed upon medicine and its progress. The present volume will prove entirely satisfactory to the student or practitioner.

Personal Hygiene in Tropical and Semi-Tropical Countries. By Isaac William Brewer, M.D., Member of the American Society of Tropical Medicine. Philadelphia: F. A. Davis Company. Price, $1.00.

With the advent of the United States into the Tropics the people are faced by the problems with which the English have had to deal for several centuries. There is now a large population of American citizens in Panama, the Philippines, and Cuba which demands special treatment and instruction in hygiene. Dr. Brewer has written a small treatise for those about to live in the tropics, which is born of experience and should prove invaluable. Every detail of the daily life is considered, and suitable directions are given for any condition which is likely to arise.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson College, Philadelphia; assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-patient Medical Department of the Jefferson Medical College Hospital. Lea & Febiger, Philadelphia and New York, 1908. $6 per annum.

This volume, dated March 1st, contains 278 pages, and has the following table of contents:—Surgery of the Head, Neck and Thorax, Charles H. Frazier, M.D.; Infectious Diseases, including Acute Rheumatism and Croupous Pneumonia, Robert B. Preble, M.D.; The Dis-

eases of Children, Floyd M. Crandall, M.D.; Rhinology and Larynology, D. Braden Kyle, M.D.; Otology, Arthur B. Duel, M.D.

Four times a year it is our privilege to call attention to Progressive Medicine, and we do so again with increased pleasure.

MATERNITY. By HENRY D. FRY, M.D., Sc.D., Professor of Obstetrics, Medical Department of the Georgetown University. New York and Washington: The Neale Publishing Co., 1907.

With a certain lack of reticence this book is dedicated to the author's mother. The association of the two is unusual. The author cites the record of his critical apparatus, which includes a good deal of miscellaneous reading from the "Bible" to the "Travels of Marco Polo." This might well have been taken for granted, as an acquaintance with these books is not an unusual accomplishment amongst civilized men. Nothing is left unsaid. The author appears to have told us all he has ever read, though it is not new or especially interesting. He relates the obstetrical experience of that portion of the Semitic race which occupied lower Asia, recorded in the Hebrew scriptures, as if he had come upon it for the first time.

MINOR MEDICINE. A Treatise on the Nature and Treatment of Common Ailments. By WALTER ESSEX WYNTER, M.D., B.S., London. Physician to the Middlesex Hospital. Price, $1.75. Toronto: D. T. McAinsh & Co., 1908.

Nearly all medicine is minor, and the average physician has to do with discomfort rather than with disease. The physician of to-day is less well equipped to deal with those ailments which to him are trifling than was his predecessor of thirty years ago. The art of medicine has suffered at the hands of the science. Dr. Wynter has written a book which elevates into due importance those slight maladies which quite properly fall to the lot of the practitioner. The opening sentence—"for who hath despised the day of small things"—gives the note of the theme. The book is *written*, not pieced and patched. It is the work of a man with a mind, and not merely an aggregation of words out of a dictionary. To read it purifies the taste.

MODERN ELECTRO THERAPEUTICS. By FREDERICK FINCH STRONG, M.D., Instructor in Electro-therapeutics at Tuft's College Medical School, Boston. New York: Rebman Company, 1123 Broadway.

An author who begins a chapter of a book on electro-therapeutics with the statement that "the human organism may be compared to a symphony orchestra," cannot expect to be taken seriously—by the present

reviewer, at least. A writer requires to have certain qualifications just as a maker of shoes does. One of the commonest fallacies in the United States is that the possession of a degree in medicine qualifies a man for authorship. This book, contrary to the author's expectation, will serve to increase still further the distrust of the profession in electricity as a therapeutic measure.

PRACTICE OF MEDICINE FOR NURSES. By GEORGE HOWARD HOXIE, A.M., M.D., Professor of Internal Medicine in the University of Kansas. Philadelphia and London: W. B. Saunders Company, 1908.

The frontispiece of this book is a gruesome spectacle. It represents the results upon the feet of wearing ill-fitting shoes, and is not absolutely germane to nursing. Many of the other pictures are equally unpleasant, but those of nurses and house-surgeons are attractive. One more book has been added to the "literature" of nursing, which has now grown to a considerable bulk.

THE TREATMENT OF UTERINE RETRO-DEVIATIONS. By G. A. CASALIS, M.B., Gynæcological Surgeon to the Victoria Cottage Hospital, Wynberg. T. Maskew Miller, Cape Town, Pretoria and Bulawayo, 1906.

This is the first book on medicine which we remember to have seen coming from South Africa, and, as such, we give it good welcome. An excellent body of medical writing is growing up in that distant region and it gives one the impression that the writers are extremely well educated. This book of 200 pages is entirely creditable to the author and to the publisher.

AIDS TO SURGERY. By JOSEPH CUNNING, M.B., B.S., F.R.C.S., Eng.; Surgeon to the Victoria Hospital for Children. Second edition. London: Baillière, Tindall & Cox; Toronto: Carveth & Co. Price, $1.25.

This is a book of 400 pages, the latest in this familiar series. Its usefulness for the purpose for which it is intended is obvious, and the author's somewhat acerb apology might well be spared.

TRANSACTIONS OF THE ASSOCIATION OF AMERICAN PHYSICIANS. Twenty-second Session. Held at Washington, D.C., May 7th, 8th and 9th, 1907. Volume XXII. Philadelphia: Printed for the Association, 1907.

This is a splendid record of the work of this association and will do much to increase the esteem in which American medicine is held.

MEDICAL LABORATORY METHODS AND TESTS. By HERBERT FRENCH, M.A., M.D., Oxon., Assistant Physician, Guy's Hospital. Second Edition. London: Ballière, Tindall & Cox, 8 Henrietta Street, Covent Garden, 1908. Toronto: Carveth & Co. Price, $1.50.

This little book is unusually well printed and bound. In its 150 pages it contains all which it is essential for a student to know. It is a sure and safe guide through the laboratory. The plates are excellent.

Medical News.

THE CANADIAN HOSPITAL ASSOCIATION.

The Second Annual Convention will be held in The Parliament Buildings, Toronto, on Easter Monday and Tuesday, April 20th and 21st, 1908. The following is the programme:—

Monday, April 20th, 2 p.m.—President's Address, Miss L. C. Brent, Supt. Hospital for Sick Children. "How to Deal with Tuberculosis as a Social Problem," Dr. W. J. Dobbie, Supt. Weston Sanitarium; discussion by Drs. Gordon and Kendall, of Gravenhurst, and Dr. Holbrook, Mountain Sanitarium, Hamilton. "The Milk Supply, Dr. Helen MacMurchy, Editor, *Canadian Nurse*; discussion by Dr. Robertson of Ottawa, and Miss Sheppard, Berlin. "Fumigation," Dr. A. D. Macintyre, Supt. Kingston General Hospital; discussion by Miss Miller, Lindsay.

Appointment of nominating committee.

8 p.m.—Reception by Miss Louise C. Brent, President, at the Nurses' Residence, Hospital for Sick Children.

Tuesday, April 21st, 9.30 p.m.—"Contagious Diseases in Relation to Hospital Management," Dr. Chas. Sheard, Medical Health Officer; discussion by Miss Brent and Miss Matheson. "Some Observations on European Psychiatric Hospitals," Dr. C. K. Clarke, Supt. Toronto Hospital for Insane; discussion by Dr. Ryan of Kingston, Dr. Hurd of Johns Hopkins Hospital, Dr. R. Bruce Smith and Dr. D. C. Meyers. "The Hospital and the Public," Del T. Sutton, Editor *National Hospital Record*; discussion by J. W. Flavelle, Esq., LL.D., W. T. White, Esq., J. Ross Robertson, Esq., and J. W. Atkinson, Esq.

Report of nominating committee.

2 p.m.—"A New Typhoid Hopper," H. E. Webster, Supt. The Royal Victoria Hospital, Montreal. "The Proper Length of the Period of Study for Nurses," Dr. H. M. Hurd, Supt. Johns Hopkins Hospital, Baltimore; discussion by Miss Patton, Miss Tolmie and Miss Chesley. "The Nursing of Incurable Patients," Miss M. M. Grey, Supt. Hospital for Incurables.

A pleasant occasion recently was the dinner given to Dr. F. J. Shepherd by the Anatomical Staff, past and present, to mark the twenty-fifth year of his occupation of the Chair of Anatomy in McGill University. It was held at the Mount Royal Club on Saturday, March 28th, and the following were present: Dr. F. G. Finley, Dr. H. S. Birkett, Dr. J. M. Elder, Dr. J. G. McCarthy, Dr. J. A. Henderson, Dr. W. I. Bradley (Ottawa), Dr. J. J. Ross, Dr. A. E. Orr, Dr. R. A. Wesley, Dr. W. G. Reilly, Dr. H. M. Church, Dr. A. T. Bazin, Dr. A. Mackenzie Forbes, Dr. C. K. P. Henry, Dr. W. E. Nelson, Dr. J. G. Browne, and Dr. J. A. Nutter.

The 30th annual meeting of the American Laryngological Association will be held in Montreal on May 11th, 12th and 13th. The meetings will be held in the Ladies Ordinary of the Windsor Hotel, and will be open to physicians. A special feature will be a splendid display of accessory sinus X-ray plates, collected from several sources, as well as a pathological exhibit.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

VON HEINEKE. "On the so-called Spontaneous Rupture of the Rectum." *v. Bruns Beitr. Z. klin. Chir.*, Bd. L. H. 2, 1906.

Von Heineke describes a case in a 30-year old man who, by lifting a heavy weight, caused a rupture of the front wall of the rectum 17 cm. from the anus. No previous disease of the rectal wall could be made out. In the eight other previously published cases there had been some previous disease of the rectal wall.

Diverticulitis and Peri-diverticulitis.

We are dealing here with the so-called "Acquired Diverticula" of the large intestine and one must bear in mind that the condition has not any relation to Meckel's Diverticulum. Acquired diverticulum is a condition affecting the colon from the splenic flexure to and including the rectum. They are outward projections of one or all of the intestinal coats, comparable to the finger of a glove. If the projection comprises all the coats it is a true diverticulum, but if consist of the mucosa alone it is termed a false diverticulum. They may occur at

any spot on the circumference of the bowel wall, although some observers think they occur most frequently at the mesenteric border, owing to the weak spots caused by the entrance of the large mesenteric veins. They occur occasionally into the appendices epiploicæ. They are found fairly frequently at the P. M. table, namely, about once in 1,000 cases. They usually occur in people past middle age, and are supposed to be induced by chronic constipation. They may persist through life simply as diverticula, empty or containing a fæcal concretion, without in any way affecting the patient's general health, but they may at any time become the seat of an inflammatory process of varying seriousness. This process may result in a firm inflammatory mass which obstructs the lumen of the bowel and which is almost always diagnosed and treated as a carcinoma. At other times the process causes a general peritonitis, while at other times the process forms a large abscess, which, if untreated, may rupture intraperitoneally or come through the abdominal wall, or may even rupture into the bladder. In the last two cases there almost always results a persistent fæcal fistula.

The clinical symptoms of "diverticulitis," the term by which inflammation of these projections is known, are attacks of abdominal pain, general at first but soon becoming localized to the left lower quadrant, and these attacks are often associated with constipation, but the stools never contain blood. Later, as described above, obstruction, a mass or general peritonitis may develop. The treatment, of course, varies with the condition of the process at the time the patient presents himself. If the lesion is small and localized, excision of the affected portion of the bowel is indicated, and the same measures must be adopted in cases of persisting fæcal fistula. The treatment of an abscess or of a peritonitis is the same as when it occurs from other causes.

Nyrop. "Studies on Stomach Operations in Benign Cases." *D. Z. f. Kl. Ch.*, Bd. 87, 1907.

He reviews fifty-four cases of gastro-enterostomy, where possible the posterior operation with a short loop, always with suture, save once, with the Murphy button. One case died from peritonitis coming from a stitch, one from pneumonia, and one from a vicious circle. Thus, the total mortality is 5.6 per cent., and he counts the operation mortality 3.7 per cent. Of these cases there was an absolute indication for the operation in forty-three, while in the remaining cases it was only partial. Of these twenty-nine were completely healed, seven were improved, four remained unhealed as to the primary condition, and three later died. The causes of the absence of betterment were as follows:—Peptic ulcer

of the jejunum, spontaneous gastropexia, secondary narrowing of the anastomoses, chronic twisting of the small intestine loop, diarrhœa, forcing of bile or pancreas juice into the stomach, peritonitis, bleeding from the wound-surface into the stomach, peritonitis, and the pre-operative causes of general weakness, great dilatation of the stomach, and pneumonia.

As to the peptic ulcer in the reported cases one finds it almost three times as often in the anterior as in the posterior, in spite of the fact that the posterior are by far the most frequent operations. This ulcer lies on or very close to the anastomoses. He thinks that pulling by adhesions, or too short a loop predispose to the formation of this ulcer.

The time between the operation and the clinical appearance of the peptic ulcer is from ten days to eight years. It may perforate acutely, causing a peritonitis, or slowly, causing an inflammatory tumour. At times they heal with a second operation. Before he considers the dangers of gastropexia he considers ordinary gastroptosis: First, gastroptosis with retention due to kinking of the pylorus or due to narrowing of this outlet, and, second, gastroptosis without retention, wholly without symptoms (or where the symptoms, if present, may be ascribed to a nervous condition). Where marked nervous symptoms are present in cases of gastroptosis without retention, he agrees with Strümpell that the nervous condition is primary, and that an operation is worse than useless. In the other cases, he is in favour of a gastroenterostomy, in preference to other operations, as gastropexia interferes with the usual muscular movements of the stomach. He notes that although the operation does not cause the dilated stomach to shrink, in the vast majority of cases it cures the symptoms. As to the so-called "vicious circle," he agrees with Peterson that this is due to a pre-operative persistent and prolonged stomach dilatation, and should be classed with cases of acute idiopathic stomach dilatation. He also quotes Mikulicz, who states that a spur formation is not the cause of the vicious circle, but rather that the vicious circle is the cause of the spur formation.

The other mentioned dangers are unimportant and easy of treatment. He refers to the fact that gastroenterostomy for a supposed stomach ulcer, may permit a carcinoma to develop unsuspected. He states that where an ulcer is found at the pylorus, it always should be resected, to prevent a later developing cancer.

Narath's Modification of Talma's Operation for Hepatic Cirrhosis.

As is well known, the first procedure suggested by Talma for the relief of ascites in cirrhosis, was the suture of the liver to the dia-

phragm; this was later changed to suture of the omentum to the anterior abdominal wall. However, since the operative mortality in both these is at the very lowest, 10 per cent., and at the same time a favourable result is by no means certain, Narath has suggested a new method which can easily be carried out under local anæsthesia, and is therefore almost entirely free from operative mortality, and at the same time, he claims it is followed by a much larger percentage of cures. His method consists in making an incision in the anterior abdominal wall on the one or other sides, and in bringing out a piece of the omentum and suturing it just underneath the skin. One must be careful to suture the deeper abdominal wall closely enough around the omentum to prevent the formation of a hernia, but not so closely as to produce strangulation of the omental veins. He claims the subcutaneous veins are by far the best suited to form a good collateral circulation and claims that in one or two weeks after the operation, one sees marked dilatation of the superficial veins and a corresponding relief from the ascites.

Doering. Contribution to Kidney Surgery. *D. Z. f. K. Ch.,* Bd. 87. 1907.

Doering discusses mainly hydronephrosis on the basis of eleven cases of aseptic, and two cases of infected hydronephrosis. None of his cases were double sided and none were in a horseshoe kidney. He states that the cause may lie in faulty development of the pelvis, ureter or the kidney vessels, or in later-coming inflammatory changes. He states that complete disappearance of the kidney parenchyma is very rare.

The chief interest attaches to the treatment to be adopted and one might state here that plastic operations on the ureter for the relief of this condition are only very rarely feasible. Therefore, the point to be decided is whether to first drain the kidney and do a later nephrectomy (for complete cure from this almost never occurs), or to remove the kidney at the first operation. He cites the views of several German surgeons on this: Diedel declares for primary nephrectomy, Trendelenburg for primary nephrectomy, Czerny for primary nephrectomy, Kronlein, Garre and Schmeiden the same. Israel, Eiselsberg and Clairmont prefer primary nephrotomy. The author decides for primary nephrectomy as Kuster first recommended: on pyo-nephrosis also, if possible, a primary nephrectomy.

Jacobsthal. "On the so-called Adolescent Thickening of the Tuberosities of the Tibiæ." *D. Z. f. Kl. Ch.,* Feb., 1907.

He reminds us that apart from the X-rays these cases would always be diagnosed fractures of the tuberosities. These cases were first described by Osgoode and later by Schlatter. They explained these cases

as lath-like fractures of the bill-like projections of the upper tibial epiphysis. These projections come from the epiphysis about the thirteenth to the fifteenth year, grow downward over the front surface of the tibia as a tongue protruded over the lower lip, which later unites with a bony mass growing forward from the tuberosity of the tibia. Towards the diaphysis is always a cartilage layer, which about the twentieth year becomes bony. Here is always a weak spot that is easily fractured. The author thinks this holds for some but not for all of the cases.

Winslow thinks these to be cases of rarefying osteitis with ossifying periostitis and so of inflammatory nature. The author thinks this or some trophic change in the epiphyseal line to be the cause. The disease usually lasts a year, but the prognosis is favourable, as chiselling off the mass gives cure.

FREEMAN. "Early Operations on Nerves in Ischemic Paralysis." *T. Am. S. Ass.*, 1907, v. 25.

Freeman states that Volkman's ischemic paralysis usually occurs in children owing to too tight bandages or splints. He thinks that although the primary trouble is in the muscles, these, by their fibroid contraction, later press on the nerves, injuring them and so hindering their own recovery. Where the nerves are affected sensory and trophic disturbances appear. The median is usually nipped when passing through the pronator radii teres, the ulnar in its course between the two portions of the flexor carpi ulnaris just below the inner condyle, and the posterior interosseous in traversing the fibres of the supinator brevis below the elbow.

At the operation the nerves are freed, transported to a new position if necessary, and the results have been excellent.

SAUERBRUCH. "Resection of the Chest Wall with Plastic Closure." *D. Z. f. K. C.*, Jan., 1907.

Sauerbruch refers first to his previous operations in his chamber, where he operates under a reduced pressure equal to 8 to 12 mm. of mercury. He emphasizes the avoidance of pneumothorax, to lessen the danger of infection. He states that the authors who think there is not much danger in acute pneumothorax are not supported by animal experiment or by clinical experience. He cites the work of Amberger who, in fifty-one cases of chest-wall resection had seventeen deaths immediately. He states that pneumopexia or tamponnade are not satisfactory. He states that Noetzel has experimentally shown that avoidance of pneumothorax is the best safeguard against infection.

He brings two new cases of excision of the chest wall for carcinoma of the breast. In both cases he covered the defect by bringing across the other breast. One case died shortly afterwards of metastases, but the other is well six and a half months afterwards. He uses two layers of sutures to make the wound air-tight.

BARTLETT.. "A Simple Operation for Stone in the Pelvic Ureter." *Z. f. Kl. Ch.* n. 22 s. 621, 1907.

Bartlett refers to cases where the stone is in the pelvic ureter. He makes a wound parallel to and at the outer border of the rectus, goes down to the peritoneum, but then works around the peritoneum till he reaches the ureters, which, he states, is easily done. Then he palpates the stone, and, holding it between the fingers, he incises the ureter, squeezes out the stone, puts in a small drain to the wound-site, which he leaves in for five or six days, and closes the remainder of the abdominal wound. He states the results have been good in every case, as there has been no urinary extravasation.

SULTAN. "Experiences with Rectoscopy." *D. Z. f. Kl. Ch.*, Feb., 1907.

Sultan cites cases showing the value of high rectoscopy or sigmoidoscopy, but also cites a case where the patient suffered from chronic catarrh of the colon and when on carefully inserting a rectoscope for 20 cm. a perforation ensued, which the author thinks was due to the air pressure on a diseased bowel. He thinks this is a danger always to be kept in mind.

MEDICINE.

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON AND HOWARD.

ARTERIOSCLEROSIS.

THAYER AND FABYAN. "Studies on Arteriosclerosis, with Special Reference to the Radial Artery."

FREMONT-SMITH. "Arteriosclerosis in the Young." *The American Journal of the Med. Sciences,* Dec., 1907; Feb'y, 1908.

The material upon which the observations of Thayer and Fabyan were made, consisted of sixty-one cases, varying in their ages from fifty-six days to eighty-three years. These studies were undertaken in order to establish justifiable inferences with regard to the general arterial tree, or special central vessels, to be drawn from the condition of the radial artery. In answering the question, is the radial artery ever

palpable, these observers say that in the great majority of the cases observed over twenty years of age, it was so found. They divide their case, clinically, into those which were not palpable, or palpable and not regarded as thickened, and those in which the vessel appeared to be distinctly thickened. In the first and second decades none of the arteries were considered as thickened; in the third and fourth decades seventy-seven per cent. were regarded as essentially normal, but in the fifth decade, sixty-three per cent of the arteries were regarded clinically as thickened vessels. The arteries which were regarded clinically as thickened, showed in the majority of cases anatomical thickening of the intima. The article concludes with the following summary:—

In old age, a thickened radial artery represents conditions which are normal, and to be expected not only in the peripheral, but in the central vessels, while an unduly thickened radial at an earlier age may mean one of two things: (1) The vessel has been subjected to unusual and exceptional strain, or, (2) It is a vessel which, from inherent weakness, or other individual circumstances, has been unable to cope with conditions which might ordinarily be regarded as normal. When a thickening of a radial artery is *unduly* marked, similar changes occur in the intima of the mesenteric artery and aorta.

The article by Fremont-Smith affords a review of the subject, from the historical point of view, and contains numerous quotations from many careful observers, showing that arteriosclerosis in the young is by no means uncommon. So recently as 1905, it was confessed by Remlinger, while discussing this condition from the standpoint of etiology, that the cause of diffuse arteriosclerosis in the young was unknown. Syphilis, of course, has always been thought to account mainly for these cases, yet in a large number this factor is not to be found.

More and more it would appear that pathologists are coming to regard the acute infections, typhoid, pneumonia, scalatina, etc., as playing a large part in bringing about this condition. Thayer and Brush, Flexner, Symnitzky and Wiesel have published papers upon the influence of such infections, describing definite microscopic changes in the media and intima.

Hewlett. "The Interpretation of the Positive Venous Pulse." *The Journal of Medical Research,* 1907, Vol. XVII, p. 119.

The writers's conclusions are as follows:—

1. A positive wave on the venous pulse during ventricular systole may be due to at least three different causes. (*a*) Simultaneous contraction of the auricles and ventricles, (*b*) tricuspid insufficiency, (*c*) paralysis of the auricles.

2. Simultaneous contraction of the auricle and ventricle causes or tends to cause the V-wave to disappear from the tracing, owing to auricular diastole.

3. Tricuspid insufficiency produces a large V-wave which appears abnormally early. In marked cases there is a gradual ascent in the tracing from the auricular wave to the summit of the V-wave.

4. In absolutely irregular pulses the auricles have ceased to contract. The positive venous wave of early ventricular systole is produced by the contraction of the ventricle and is transmitted unchanged through the motionless right auricle to the veins of the neck. Normally this wave is taken up by the dilating auricle.

5. Tricuspid insufficiency does not necessarily accompany auricular paralysis, and when it does so its diagnosis is difficult for the reason that in both conditions the V-wave appears early, owing to the excess of blood in the right auricle.

CEREBRO-SPINAL MENINGITIS.

Flexner and Jobling. "Serum Treatment of Epidemic Cerebro-Spinal Meningitis." *The Journal of Experimental Medicine,* January, 1908.

This report is based upon the application of a diplococcus antiserum, prepared in the horse, to the treatment of cases of cerebro-spinal meningitis occurring in New York, Philadelphia, Cleveland, Castalia and Akron (Ohio), Edinburgh and Belfast. Forty-seven cases of meningitis were treated with the antiserum and thirty-four (34), or 72.3 per cent. recovered. The records show that of the 13 fatal cases, 4 were either fulminant in type, or, the patient's case was so extreme, that death occurred within a few hours of the injection of the antiserum. Deducting these four fatal cases one has the percentage of 79.9 per recoveries, and 21.1 per cent. deaths.

In reading this report one cannot fail to be impressed with the open mindedness of the observers. They are evidently searching for an effectual way of dealing with this dreadful disease, medicinal treatment of which seems practically ineffectual.

It is claimed for this new treatment that on giving the antiserum in many cases there followed a drop in the temperature, a return of the reflexes, and the general severity of the symptoms abated considerably. After describing a favourable course followed by several cases thus treated, one finds the following remark: "Whether this is more than a coincidence cannot be decided now," or again, "The critical dis-

appearance of the severe symptoms after the lumbar puncture and the injection of the serum would seem to bear some relation to each other." Yet another quotation may be made: "Lumbar puncture and injection of the antiserum having been made, the patient's condition changed quickly for the better, but the final recovery was fluctuating and general. The precise value of the serum injections must therefore remain doubtful."

The writers state their opinion regarding the value of the serum as a therapeutic agent in epidemic meningitis in a few words. "No one could be less convinced of the final fact of its value than we are; on the other hand, we believe that the data at hand warrants a wider trial of the antiserum, particularly as no other, and better means of combating the disease is available."

The manner of action of the serum is a matter of some speculation, but the observations made show "that the antiserum exerts a definite and injurious influence upon diplococcus in the cerebro-spinal fluid through which its multiplication is restrained, and it is rendered more subject possibly to phagocytic inclusion and digestion, at the same time that it is deprived of its capacity to grow outside the body on culture media."

The process of immunization of the horse from which the serum was taken occupied a year or longer. The details of method need not be described in retrospect.

The dosage of the antiserum is by no means fixed, and in looking over the records one finds that it has varied from 5 cc. to 15 cc., while the total amount administered to the individual patients has varied from 10 to 220 cc.

The mode of administration, etc., cannot be better described than by quoting the general instructions given by these authors.

"The antiserum should be kept in a refrigerator until it is to be used; when it should be warmed to body temperature before it is injected. The antiserum is to be introduced directly into the spinal canal after the withdrawal of cerebro-spinal fluid by means of lumbar puncture.

The quantity of antiserum to be used at a single injection should not exceed for the present 30 cubic centimeters." ..... "The injection of the antiserum should be repeated every twenty-four hours for three or four days or longer." ..... "The evidence at hand indicates that the earlier in the course of the disease the injections are made the better the results." ..... "Until the antiserum is proven to be of

value or of no value in the treatment of epidemic meningitis, its manner of action should be carefully observed and recorded so that a definite decision may be reached as quickly as possible."

COPPS AND LEWIS. "Observations on Certain Blood Pressure Lowering Reflexes that Arise from Irritation of the Pleura." *The Amer. J. of Med. Sciences,* December, 1907.

It is in connexion with the operation of thoracentesis that the experiments of Copps and Lewis were carried out to explain, if possible, the alarming symptoms of unconsciousness, convulsions, and occasionally death, which supervene upon what usually seems so trivial an operation, and which is generally explained by a lowered blood pressure.

When those cases explained by pulmonary œdema, accidental hæmorrhage, pneumothorax, emboli or thrombi in the heart or pulmonary arteries or in the cerebral arteries are excluded, there still remains a considerable number of cases of sudden death, in which no anatomical lesion can be found to explain the collapse. These observers have experimented on dogs, inducing pleural effusions, introducting oil into the pleural cavity, and have irritated the pleura in various ways, making in all fifty-one experiments, in the course of which careful observation was made upon the blood pressure and respirations. These observations are represented graphically in several instances. They also tested the effects of intravenous injections of adrenalin, in cases where the blood pressure was unduly lowered. In two instances, this injection seemed to save the life of the animal.

Besides these observations upon animals, there are recorded eight observations in pleurisy in man, with special reference, as before, to alteration in blood pressure during aspiration. The conclusions are, in substance, as follows:

1. Aspiration of oil from the pleural cavity of healthy dogs causes little or no change in the arterial pressure.

2. Aspiration of inflammatory exudate, from the pleural cavity of dogs with acute pleurisy often causes a more marked fall in blood pressure, depending more on the degree of trauma or irritation of the inflamed pleura, than on the amount of exudate withdrawn, or the rate of withdrawal.

3. Irritation of the visceral pleura, of healthy dogs, by mechanical, thermal and electrical means, and by certain chemicals produces little or no effect upon blood pressure, except over the roots of the lungs, where mechanical and electrical excitations produce long strokes of vagal type.

4. The effect of irritation of the parietal pleura, needs further investigation. The common drop of blood pressure, and disturbance of respiration, occurring when the trocar is forced through the chest wall into the cavity, is probably due to injury of the parietal pleura.

5. .....

6. These reflexes conform to two types, which, as a rule, occur singly, but may be combined. (*a*) The cardio-inhibitory type, in which the heart is slowed and the pulse tracings make violent excursions, with a great range between systolic and diastolic pressure. Respirations are also usually slowed, and may be inhibited. This type of reflex, when it occurs alone is seldom fatal; (*b*) The vasomotor type, in which the pulse tracings show a steady rapid decline of pressure without any great difference in systolic and diastolic pressure, and frequently terminate in death. .....

7. The cardio-inhibitory reflex is central, because it is prevented or stopped by cutting both vagus nerves in the neck. Atropine, in a dosage of 1 milligram paralyzes the cardio-inhibitory fibres and destroys the reflex.

8. The vasomotor (dilator) reflex may be central or peripheral. If central, the afferent impulses reach the medulla by way of the thoracic sympathetic, the white rami and the cord, and not by the vago-sympathetic cord. If peripheral, the reflex goes from the pulmonary fibres to the pulmonary plexus, thence to the thoracic sympathetic nerves, and downward through the splanchnics to the cœliac and other plexuses in the abdomen. Adrenalin is the physiological antagonist to the vaso-dilator reflex and is often life-saving .....

9. These types of reflexes occur also in man during operative procedures upon the inflamed pleura. The cardio-inhibitory type is manifest by a slow intermittent pulse with great difference between systolic and diastolic pressures; the vaso-motor type by a steady fall in the blood pressure, and by a pulse that grows steadily weaker, until it cannot be felt.

10. For emergency use in case of falling blood pressure and symptoms of collapse, adrenalin intravenously is indicated. Atropine is of little service, and may even do harm.

11. The instrument used in thoracentesis should not irritate the visceral pleura any more than is absolutely necessary. The trocar is preferable to the needle ..... Great care should be employed during the drainage of an empyema. ..... Swabbing the pleural surface is attended with danger.

W. F. Hamilton.

BYERS, W. G. M. "The Ocular Manifestations of Systemic Gonorrhœa with Reports of Cases of this Nature." Royal Victoria Hospital Reports. Vol. II. pt. 2. February, 1908.

The reviewer has had an early opportunity of studying this contribution and has been impressed by a number of features in the preface, in addition to the text.

The work, as Byers very justly remarks, is more than a mere compilation of the literature upon this subject; it is a clear and comprehensive review of all that has been heretofore attempted upon metastatic forms of gonorrhœa affecting the eye. All the authentic reports of this nature have been carefully synopsized, and those which could not be clearly regarded as belonging to this type rigidly excluded. After tabulating the sections the author has critically reviewed them seriatim and arrived at certain definite conclusions. Doctor Byers refers to a number of cases met with in his own practice, and these, with a pathological study of gonorrhœal iritis, add to the value of the work from the point of view of originality. Some of the principal features in the writer's conclusions are as follows:

The early French and British writers were the pioneers in the development of our knowledge of gonorrhœal ocular metastases. From the first, gonorrhœal iritis was uninterruptedly recognized by the profession; but after 1850 the general practictioners alone continue to believe in a metastatic conjunctivitis. The specialists influenced especially by the work of Piringer, went to the opposite extreme and accepted only the theory of direct infection; but they have been again forced into recognizing metastatic conjunctivitis through the bacteriological investigations which have followed Neisser's discovery. The occurence of numerous other conditions in the eye, and the phenomena which gave rise to the old theory of "retropulsion," by which was meant an outbreak of inflammation in one part as the result of its suppression in another, have been made easier to understand through the better appreciation of the systemic phases of gonorrhœa of recent years.

Systemic gonorrhœa most commonly occurs in males, in those cases in which the posterior urethra and the contiguous structures are involved; but nothing definite is known in regard to the factors which underlie the undoubted predisposition of certain individuals to this condition.

The accumulating pathological evidence seems more and more, to show that the gonococci themselves, and not their free toxines or the secondary or mixed infections, are rsponsible for the local manifestations.

Metastatic inflammations of the eye, of gonorrhœal origin, are marked, in general, by uncertainty and irregularity as regards the time of their occurence, the extent to which the parts are involved, the severity of their symptoms, and their course and behaviour; by their close association with manifestations of the disease in other parts of the body; and by a marked tendency to relapse, and to recur with fresh gonorrhœas.

Ocular inflammations are often the first manifestation of systemic gonorrhœa, and the writer holds that they frequently form the sole expression of this condition.

Patients with systemic gonorrhœa should be treated as those actually suffering from an infections disease; and, as there are grounds for thinking that gonorrhœal metastases pick out points of lessened resistance, excessive use of the eyes, while the systemic infection is in progress, is to be deprecated.

Metastatic gonorrhœal conjunctivitis is a well established clinical entity. The figures of Fournier and of White in regard to its frequency have been often misquoted; but it will probably be oftener met with now that it has gained for itself a wider recognition. It occurs at any time during the course of a systemic gonorrhœa, but apparently more often than the other eye conditions as an initial manifestation. The infection is almost invariably bilateral, and both eyes are usually simultaneously involved. The objective appearances, and the subjective symptoms differ little, if at all, from those of any of the so-called acute "catarrhal" inflammations of the conjunctiva. The discharge is typically slight in amount, and almost always mucoid in character. Pure cases run their course in two weeks; but in thirty per cent of the patients the inflammation is complicated by affections in other coats of the eye. Some of these, at least, are of the nature of deep-seated metastatic inflammations which throw light on the true nature of the conjunctivitis. Relapses occur either alone, or, more often, in association with affections of other parts of the globe.

Though it is impossible, at the present time, to determine its exact mode of development, a keratitis occurs in association with systemic gonorrhœa which is typically of a multiple and superficial nature, and commonly symmetrical in character, and central in situation.

The deep-seated congestion sometimes observed in metastatic conjunctivitis is often only an expression of an inflammation of the interior structures of the globe, actually present or in process of development. The cases of pure sclero-conjunctivitis, which apparently do

occur, ought to be differentiated from metastatic conjunctivitis, and classed by themselves.

In all cases of so-called iritis the pathological process is by no means limited to the iris, but extends at least to the adjacent division of the uveal tract.

The writer recommends discarding the words iritis, and substituting the terms mild or severe irido-cyclitis, the better to express the character and extent of the changes known to be present in these cases.

There are no figures to show what part the gonococcus plays in the production of the inflammations of the uveal tract, viewed collectively; but, taking the statistics for iritis as an index, it would seem that the percentage of cases, attributable to this organism, varies as the result of differences in the social and hygenic condition of the places in which the statistics are collected.

While the gonococcus apparently seeks the vascular coat of the eye as its seat of predilection, the exact relative frequency with which the various structures of the globe are visited by gonorrhœal metastases remains to be determined. Likewise, no definite idea can, at the present time, be formed of the usual extent, duration, and severity of the inflammations of the uveal tract, or of numerous special features of these conditions. Writers, generally, have been too loose in their nomenclature, and too many reports are lacking in details and exact descriptions essential to a determination of these points.

Arranged according to types, one finds that all the common forms of uveal inflammation have been attributed to systemic gonorrhœa, though the statements of Fournier in regard to the frequency of serous cyclitis (aquo-capsulitis) are not borne out by a study of the literature.

Generally speaking, the uveal affections show a tendency to be double-sided in the first as compared with the second and later attacks, and to relapse, and to recur with fresh gonorrhœas. They precede, or follow, or break out simultaneously with other manifestations, or form the sole expression of the systemic infection. They have no special features, except that swellings of any kind in the iris tissue are never observed. Gelatinous exudations are more an indication of the severity of the inflammations than of their origin. An associated metastatic conjunctivitis is suggestive. The purulent forms, which often show no sharp line of demarkation from the plastic, are marked by an extraordinary tendency to recovery.

Metastatic gonorrhœal inflammations of the optic nerve and retina commonly take the form of a diffuse, and scarcely measurable neuro-retinitis, associated, at times, with considerable retinal œdema. Byers

has noted, that when the nervous apparatus of the eye is solely involved the affection is bilateral, but when it is implicated along with the uveal tract the neuritis is unilateral in character. Pathological investigation favors the blood-vessels rather than the lymph spaces as being the principal route for the infection. The prognosis must be guarded, though, generally speaking, the outlook is good.

The cases of dacryoadenitis, which have been attributed to systemic gonorrhœal infection, conform to what we know of inflammation of the lacrimal gland in general, namely, that while the cases caused by direct extension are generally unilateral and go on to suppuration, those produced by metastases are usually bilateral in character and end in resolution.

In reading through the study one is impressed by the fact that these deductions and conclusions have been arrived at only by persistent and conscientious observation and application. The clinical features are not the only valuable points brought out in the work; if only for presenting a complete and reliable bibliography upon this rather obscure subject Byers deserves the gratitude and appreciation of all interested in the theory and practice of ophthalmology.

F. T. T.

Birch-Hirschfeld. "Optic nerve disease in connection with diseases of the posterior accessory inuses of the nose." *Grafe's Arch.*, May, 1907.

During the past few years the close relationship existing between the nasal cavity and the orbit have become the subject of much investigation, with the result that many lesions occurring in the eye and its adnexa have been traced to co-incident affections of the nose. Birch-Hirschfeld records the histories of four cases: in the first there was a relative scotoma followed by an absolute scotoma and exophthalmos; there was inflammation of the antrum, ethmoid and sphenoid, originating from an alveolar abscess, the inflammation finally extending to the superior orbital fissure causing paralysis of the oculo-motor and abducens. Oedema of the orbit was the cause of the exophthalmos. In the second case there was a central scotoma which rapidly improved upon removal of the sinus trouble, the third was due to acute empyema of the ethmoid perforating into to the orbit; the relative scotoma which existed disappeared upon evacuating the pus; in the fourth case there was a neoplasm in the sinus extending into the orbit which called for exenteration of the orbit. The conclusions drawn are: 1st. That inflammatory affections or neoplasms of the posterior ethmoidal cells can spread to the orbit and optic nerve producing early and severe damage, to the visual acuity and even blindness. 2nd. Visual disturbance may first appear

as a central scotoma with intact peripheral field. 3rd. Because of the difficulty in diagnosing affections of the sinuse and the posterior ethmoid and sphenoid cells and the great danger to life and vision, the early demonstration of this central scotoma can be of the greatest significance.

4th. The differential diagnosis between toxic and infections optic neuritis and a disease of the optic nerve from an affection of the posterior ethmoidal cells would rest upon (a) unilateral nature of the condition although it is sometimes bilateral (b) the relatively acute development of the visual disturbances and its progressions to an absolute scotoma. Anatomically the cause of the central scotoma is an isolated disease of the pupillo-macular fibres behind the entrance of the vessels. It consists of an œdema of the optic nerve, swelling and proliferation of the ganglion cells and a pronounced degeneration of the nerve fibres. Venous stases of a circumscribed area, besides a toxic injury to the nerve fibres has to do with its origin and reaction.

T. R. Torak. "The Treatment of Ocular Tuberculosis and Tuberculin." *Arch. Ophthalmology,* 1907.

After mentionning the various operative procedures for the relief of ocular tuberculosis, Torak gives his own experience of the treatment of 16 cases by tuberculin in the eye clinic at Budah Pest. Tuberculin T. R. was used, the first injection was 1-1000 m.g. and was then slowly increased. The majority of patients were treated by the ambulatory method. Of the 16 cases 8 were cured. 4 showed marked improvement and in 2 cases there was no results.

Bruckner. "Experience with Koch's Tuberculin." *Arch. Ophthalmology,* September, 1907.

Tuberculin was used in 38 cases, 53 injections being made with old tuberculin and 152 with tuberculin T.R. T.V. was injected deeply into the muscles in the inter scapular region, no local reaction resulting. T.R. was injected subcutaneously in the forearm and was followed by sharp reaction lessening in intensity as the solutions were made more concentrated. Brückner attributes this reaction to the glycerine water used in diluting T.R. Abscess formation was never observed. In 35 cases where T.R. was used for diagnostic purposes 17 showed a general reaction. Twelve acute cases of iritis and irido-cyclitis were treated and two gave a positive general reaction while in fourteen chronic cases a positive reaction was observed in eleven. The majority of cases in which the clinical picture suggested tubercular diseases of the uvea, reacted positively to the injection, but one has to remember that the reaction may be due to tubercular foci elsewhere in the body hence the

reaction to tuberculin is not an absolutely positive proof of tuberculosis of the eye, the only positive proof is a local reaction to the tuberculin in the diseased organ itself and this was observed in three cases. Brückner considers that ocular tuberculosis is generally secondary to other tubercular foci.

Chas. Steadman Bull, M.D. "Some of the Rarer Ocular Lesions associated with Gout and General Lithemia." *Ann. Ophthal.* April, 1907.

Gout is due to the accumulation of uric acid in the blood. Before an acute attack the urine may show a diminution in uric acid but after the attack the excretion may be excessive. High blood pressure and gout go together. Arterial sclerosis is responsible to each for its causation. Intestinal fermentation is generally responsible for the acid state. The lithemic dyscrasia is the frequent cause of conjunctivitis, œdema of the eye lids, choroiditis, retinitis, neuritis and affections of the ocular muscles. Some of these ocular lesions precede acute gouty attacks elsewhere and when these latter have occurred the eye lesion promptly disappears. As an example, in conjunctivitis (in which there is but little secretion and local treatment is of no avail) the eye attack lasts a week and is then succeeded by an explossive inflammatory attack of arthritis in the toes, ankles or wrist joints. The œdema of the eyelids when it occurs involves all four lids. The lids are sometimes hard and dense but following the outburst of an acute gouty attack elsewhere the œdema disappears. The external rectus is the muscle most frequently involved in affections of the ocular muscles. The paralysis is generally transient clearing up rapidly choroiditis. Retinitis and optic neuritis are the results of degenerated arteries and veins and high blood pressure occuring in advanced lithemia. The treatment has to be largely dietetic.

J. W. S.

OTOLOGY.

UNDER THE CHARGE OF DR. BIRKETT.

Robert Barany. "The Physiology and Pathology (*Functional Examination*) of the *Semi-Circular Canals* in *Man*." *Deuticke*, Leipzig und Wien., 1907.

Under the above title Bàràny his recently published a brochure which represents an attempt to set forth the recent work on the labyrinth in a form available for the practising otologist.

The aim of the author, as stated in his preface, has been rather to give a working basis for routine clinical examination than to discuss

the various hypotheses by which nystagmus, dizziness and other symptoms which follow labyrinthine stimulation are to be explained. Although this statement explains the sketchy outline of the historical and physiological side of the subject, I think that a more extensive discussion of this section would have been a better introduction to the work which follows. The clinical application of these methods is of such recent date that to all but those who have followed closely the work published in the special otological journals the subject is necessarily somewhat new and strange. From an historical point of view it is remarkable that the function of the static labyrinth has been so little recognized until recent years. Purkinje, in 1825, was the first to observe the nystagmus in a patient rotated in a revolving chair. He attributed it to a brain irritation arising in some way from the centrifugal force. About the same period Flourens observed a relation between the semi-circular canals in the pigeon. He noted that the disordered movements corresponded to the plane of the canal injured. Although these observations were followed by many others pointing to a similar conclusion, their significance was slow of acceptance.

The labyrinth continued to be regarded as part of the hearing apparatus, and as late as 1877 Helmholtz regarded its function as that of perceiving noises, as distinguished from musical tones, the perception of which he attributed to the cochlea.

According to the views generally accepted at present the internal ear, or *labyrinth,* contains two separate sense organs, (1) *the cochlea,* which is the organ of hearing, and (2) *the vestibular apparatus* (consisting of two sacks, the utricle and saccule, and three semi-circular canals) which is concerned with the perception of accelerated movements in the various planes and plays a part of varying importance in the maintenance of the equilibrium and the determination of the gait of the patient.

These latter functions are, in ordinary daily life, probably much more dependent upon sensations from the eyes, muscles, joints, skin, etc., and it is only when the labyrinth becomes irritated that it proves a disturbing element.

Where the labyrinth has been completely destroyed, a compensation takes place, and little change can be noted apart from some finer distinctions of gait.

The semi-circular canals are concerned with the perception of turning movements in the three planes and, from their anatomical structure, the cristae, which are the end organs of the vestibular nerve, are more disturbed at the beginning or end of such movements, that is, during a positive or negative variation in speed.

In accordance with this view it is clear that the physiological stimulus for the semi-circular canals is a rotary movement of the body.

The reaction to stimulation is shown by nystagmus, which may also be accompanied by dizziness, disturbed equilibrium and (in severe reactions) by nausea and vomiting.

Labyrinthine nystagmus is to be distinguished from that of eye or brain disease by special qualities, which are fully described by the author along with the conventional nomenclature and the rule for classifying the various forms of nystagmus.

The method of carrying out the examination on a revolving chair is described in detail, and some interesting figures are given which the author has compiled from the results of many such examinations carried out by him in this manner.

The degree of stimulation required to give a suitable reaction is a relatively high one, the usual being ten revolutions on the chair at a moderate speed.

In this, however, there is considerable individual variation and in some cases the reaction is stronger after this number of turnings than is required. It has been found, however, the most generally satisfactory amount of stimulation and furnishes a convenient standard of stimulus. Very interesting and important is the discussion of the subjective and objective symptoms of labyrnthine irritation which accompany nystagmus, especially dizziness and disturbance of equilibrium.

It is quite evident that in clinical work a symptom like dizziness, which may arise from so many causes must not, even in a patient with ear disease, be attributed to the labyrinth unless it shows distinctive characters peculiar to this form of dizziness. The symptoms produced by labyrinthine stimulation reproduce in a qualitative way the symptoms seen in irritation of the labyrinth from disease, and such examination of normally functioning labyrinths forms a great aid to the interpretation of the symptoms of all minor ear diseases.

Although turning is the physiological form of stimulation it has the disadvantage of stimulating both labyrinths at once, which at first sight would make it unsuitable for a unilateral examination. It is found empirically, however, that according to the direction of the turning the action of one labyrinth seems to predominate during the turning and the other after, so that a comparison of the two sides can be obtained with a fair degree of accuracy. A convincing demonstration of this is to be obtained by the examination of a case where one labyrinth has been destroyed. The best form of unilateral examination is the caloric, which is also fully described and is as follows:—The ear is syringed out with cold or hot water and the reaction is again by nystagmus, which

varies in direction according to whether hot or cold water is used. This is the best test as to whether the labyrinth has any remains of irritability or not, but is disagreeable to the patient.

Electrical stimulation can also be used, but is not considered of much value by the author, since a reaction can be induced even where the labyrinth is destroyed apparently from stimulation of the vestibular nerve or even deeper nervous connections.

The latter part of the book deals with the symptoms and diagnosis of various pathological conditions of the labyrinth.

Of special interest is the discussion of the destruction of the labyrinth from either acute suppuration, hæmorrhage, fracture of the base of the skull or other causes, and (2) localized labyrinthitis which forms the pathological basis of the so-celled "Menière's disease."

A very practical application of the functional examination of the labyrinth arises from the indication it gives in suppurative diseases of the middle ear of an extension of the disease inward either from the tympanum or antrum. In the event of such a case requiring operative treatment the condition of the labyrinth is an important guide as to how far this special region of the the temporal bone must be dealt with if one wishes to make the patient's future free from danger of intracranial complications and to secure the arrest of the disease with complete healing.

The author draws a comparison between labyrinthitis, with its relation to intracranial trouble, and appendicitis, with its well known dangers to the abdomen.

He gives what he considers to be the indications for operation upon the labyrinth, and describes the method devised by Neumann.

To all interested in the more exact diagnosis of ear diseases this little work is bound to be of great interest.

E. Hamilton White.

Vienna, January, 1908.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

(Continued from last issue.)

Case of Acute Purulent Meningitis (probably epidemic) in a very young infant.

This case is of unusual interest, because of the very early age of the patient (8 days), the absence of apparent cause, the suddenness of the attack, its rapid termination and the extensive damage found at the autopsy.

The mother of this child, æt. 22, primipara, was in good health when admitted to the Montreal Maternity, had an easy and normal labour on November 10th, 1907, had an uneventful puerperium, and was discharged in good condition on November 23rd. She lived in Maisonneuve, on Notre Dame Street East, near the Dominion Park. There had been no sickness in the house previous to her admission, and, so far as I have been able to ascertain, there have been no cases of meningitis in the neighbourhood.

The child, a female, was premature (about 36 weeks), and weighed at birth 2,400 gram. (5.29 lbs). Although it nursed fairly well at the breast, it lost steadily, and on the eighth day weighed 1975 gram. (a loss of 425 gram.). Such a loss for a week or two or even longer is common enough in premature children, and in this case did not attract any attention, for otherwise everything seemed to be going on normally and satisfactorily. On the morning of the eighth day (November 17th) the child was noticed to be extremely restless, crying a great deal and not nursing well. The temperature was 97°, the pulse normal. The following morning the temperature was 103°, and the pulse very rapid (150-200); there were definite spasms of the upper and lower limbs on both sides, both tonic and clonic in character. Throughout the day at intervals opisthotonos was very marked, the pupils were widely dilated, and there was almost constant twitching of the eyeballs. Soon the child refused nourishment, the respirations became laboured and shallow, the face and lips cyanosed, strength and weight rapidly failed, and the lusty cry of the evening before and of the early morning diminished to a feeble wail. Throughout the day the motions were loose and watery. About 7 p.m. the spasms which had been continuous, diminished perceptibly and the child became comatose. The respirations became shallower, the pulse imperceptible, and death occurred at 7.30 p.m. One hour before death the temperature was 104°. There was no evidence of coryza or conjunctivitis, and there was no ear discharge. The disease ran its course in 36 hours.

The seventh regular meeting of the Society was held Friday evening, January 3rd, 1908, Dr. Wesley Mills, President, in the Chair.

PATHOLOGICAL SPECIMEN: ACUTE ENDOCARDITIS WITH MULTIPLE INFARCTS.

F. B. Gurd, M.D.

ANEURYSM OF THE ASCENDING AND TRANSVERSE ARCH OF THE AORTA.

W. S. Lyman, M.D.

A. G. Morphy, M.D.—This man came to my office four days before death complaining of dyspnœa but no pain. The dyspnœa was severe,

and there was a very harsh, brassy cough. I suspected aneurysm, but was not able to make out any very definite signs on examining the chest. The stertor suggested at first some laryngeal obstruction, but on examination, I concluded that the trouble must be farther down. His condition grew progressively worse, the difficulty in breathing seemed to come in paroxysms; it was not only that he was continuously oppressed, but at times, particularly on coughing, he would almost suffocate. Just before he was taken in to the hospital a great many moist sounds could be heard at the base of both lungs and he was in an extremely critical condition.

The man was a labouring man and could not speak very good English, but from what I could make out there had been no traumatism.

SARCOMA OF THE INTESTINE.

F. J. Shepherd, M.D.

ACUTE PURULENT MENINGITIS IN A YOUNG INFANT.

J. C. Cameron, M.D.

ANATOMY OF CONGENITAL DISLOCATION OF THE HIP.

W. G. Turner, M.D.

F. J. Shepherd, M.D.—We are all indebted to Dr. Turner for this original paper. It is a very interesting subject and one which is of more importance than was formerly thought. Some twenty-five years ago, in making a dissection in the dissecting room I came across such a dislocation. The history of the case was that the patient had been born with a deformity of the hip, that she had gone around all her life with a dislocated hip, bearing a large family successfully. In this case there was a posterior acetabulum. The head of the bone had come through the capsule of the joint and was lying on the dorsum ilii, a false capsule having formed. I found also in this case that the ileo-psoas muscle had been torn away from the lesser trochanter and was attached to the pubic portion of the pelvis. The head of the bone was flattened and that side of the pelvis was much atrophied.

W. G. Turner, M.D.—As to the age it is relatively easy in bilateral cases up to six years of age, certainly to five, to reduce these cases and proceed with the treatment. In unilateral cases certainly up to six years and frequently to seven. In some cases it is wise to give preliminary treatment for probably six weeks. As to the capsule I think in most of the dissecting specimens the hour-glass contraction is not so marked, as in most cases the slipping round of the head, upwards when body weight is thrown on the affected side, and then back again with

rest; this prevents the usual constriction. But preliminary traction in these older cases is necessary, and here also if this reduction is attempted the fixation must be carefully carried out, as at that age contractures in the pathological condition are very frequent if the fixation was prolonged over long. With regard to the acetabulum described in Dr. Shepherd's dissection, what I referred to was that in most of these cases a new acetabulum does form, but the cavity is not deep enough and it does not retain the head firmly enough to prevent the up-riding when very much weight is thrown on this side. The tearing away of the ileo-psoas in Dr. Shepherd's case was very interesting.

The eighth regular meeting of the Society was held Friday, January 17th, 1908, Dr. Wesley Mills, President, in the Chair.

The evening was devoted to short papers, case reports, and descriptions of pathological materials, all of which had been presented before the Lister Laboratory Club of McGill University during the past year. This club has been in existence now for ten years, and the membership is confined purely to workers in the various laboratories not only of McGill but of other universities in this city. It is held in a very informal manner, and one of the regulations is that no papers are published and no formal papers given. The discussions are merely talks on various points of interest and difficulties met with in the daily work in the laboratory. The other members criticize the points brought up or give suggestions for the solution of difficult problems. The meetings are held once a month during the winter in the pathological laboratories of McGill University.

GIANT-CELLED TUMOUR IN A TROUT.

J. G. Adami, M.D.—The report of this case appears on page 163 of the March number of the Journal.

F. J. Shepherd, M.D.—Probably twelve years ago I caught a doré with a large sarcoma growing from the ventral surface to one side the median line. It was examined by Dr. Wyatt Johnston, and pronounced a spindle-celled sarcoma.

DERMOID OVARIAN TUMOUR COMMUNICATING WITH THE RECTUM.

Wm. Gardner, M.D.—A report of this case will be found on page 176 of the March number of the Journal.

SARCOMA (SECONDARY FROM MEDIASTINUM) INVOLVING HEART.

C. F. Martin, M.D.—The report of this case appears on page 179 of the March number of the Journal.

Oskar Klotz, M.D.—Examination was made of a section taken across the ventricular septum of the right heart immediately below the tricuspid valves, where, under ordinary circumstances, one should strike the bundle of His. In no section was I able to demonstrate this bundle. The heart muscle in this area also was completely obliterated.

Wesley Mills, M.D.—To make the heart rhythm depend upon a quantity of muscle so small as that of the bundle of His does not greatly help the myogenic theory; and we are apt to forget that ganglia and nerves have been demonstrated in this bundle; it is not composed entirely of muscle. I have heard nothing so strong against the myogenic theory up to the present as this very case, and I would be very glad if it could be worked out further.

J. G. Adami, M.D.—I should like to ask if it is right to speak of the bundle of His as muscular.

Wesley Mills, M.D.—They qualify it by saying that it is a muscular bundle of somewhat embryonic character.

BILHARZIOSIS.

R. P. Campbell, M.D.—The report of this case will be found on page 178 of the March number of the Journal.

THE CULTURAL FEATURES OF A NEW ORGANISM OF THE CONJUNCTIVA.

S. H. McKee, M.D.—The report of this case appears on page 173 of the March number of the Journal.

CONGENITAL HEART DISEASE.

Maude E. Abbott, M.D.—This chart was prepared with a view to comparing the clinical history of a number of cases of this condition with the post mortem findings. Dr. Abbott showed the distinct bearing of the two.

CONGENITAL ABSENCE OF GENITO-URINARY SYSTEM OF LEFT SIDE.

John McCrae, M.B.—The report of this case appears on page 177 of the March number of the Journal.

J. G. Adami, M.D.—It is a matter of common observation that where there is congenital absence of the one kidney the adrenal is to be found. If Dr. McCrae's conclusion be correct—and it seems most plausible—that here we have evidence of complete absence of the germinal ridge of one side, it follows that we must regard the adrenal cortex as having a different origin from the pro-, meso-, and meta-nephros. There are, I know, those who hold this view, but hitherto, I confess that I have been dubious of the evidence brought forward by them.

J. F. Shepherd, M.D.—We had quite a number of specimens of displaced kidneys in the Museum, and it was noted that the adrenals were always in their proper position.

Wesley Mills, M.D.—The light this case throws on the origin of the uterus in the human subject is particularly interesting.

JohnMcCrae, M.B.—I omitted to mention the adrenal because it seemed to me one of the things which follows as a matter of course. If I recollect aright, this is the seventh case I have seen of absence of one kidney, and I am sure in all the adrenal was present. Absence of the genital ridge would account for the absence of the structures which are here missing, and would allow the adrenal, of different origin, still to be present.

HYPOPION IRITIS ASSOCIATED WITH EPIDEMIC CEREBRO-SPINAL MENINGITIS.

F. T. Tooke, M.D.—The report of this case appears on page 184 of the March number of the Journal.

MELANO-SARCOMA OF THE COMMON BILE DUCT.

Chas. W. Duval, M.D.

Oskar Klotz, M.D.—This tumour has been an extremely interesting and unusual one. The discussion naturally centres around the nature of the cells and the origin of the pigment. Up to the present, there is still much discussion where the actual manufacture of the melanin takes place, whether in epiblastic or mesoblastic tissue. Recently, Wuttig has reported a case of melanotic tumour in the gall-bladder, in which he considers that the pigment arises in the tumour cells, which are of epithelial origin. He studied the development of pigment in normal tissues, particularly that in the negro and some of the lower animals. From these studies he comes to the conclusion that the pigment is produced in the epithelial cells, but is, however, deposited in the connective tissue stroma beneath. How far he is right is yet to be seen. There is this peculiarity in these tumours that their origin is always associated in close relation to epithelial structures, and this seems also the case in the tumour presented.

J. G. Adami, M.D.—There have been rare reports by Delepine and others of primary melanotic tumours of the liver and gall-bladder, but with pathologists in general one has up to now doubted this interpretation and suspected some undiscovered primary site in connexion with the skin or choroid of the eye. It is impossible to study Dr. Duval's specimen and his data without being convinced that this is a primary growth, and as such, of the highest interest and importance. As to whether these melanotic tumours, or as Ribbert terms them, Chromatophoromas, are of epithelial or connective origin, whether they are of the nature of Krompecher's "basal celled cancers," or of sarcoma, is

one of the most actively debated questions in pathology at the present time. I am inclined to take an intermediate position and to suggest that they are of mesothelial or endothelial origin, from the endothelium lining lymph spaces. Their variation from the alveolar, cancerous, type to the purely sarcomatous is what we find in the mesotheliomas as a class, in tumours of the adrenal cortex for example.

TUBERCULOMA OF THE TONGUE.

E. M. von Eberts, M.D.—Dr. von Eberts read the report of this case, which appears on page 183 of the March number of the Journal.

TRYPANOSOMES IN MONTREAL RATS. EXPERIMENTAL WORK—ARTERIOSCLEROSIS.

Oskar Klotz, M.D.—The report on these investigations will be found on pages 165 and 169 of the March number of the Journal.

Wesley Mills, M.D.—I should like to ask how many treatments that rabbit had.

Oskar Klotz, M.D.—In the vessels of experimental arterio-sclerosis here shown, we have demonstrated two types of the disease, the one occurring in the intima, where there is a definite proliferation with a secondary degeneration, and the other confined to the media with degenerative changes alone present. Identical changes have been produced by means of various chemicals, but none other to my knowledge by this method of increasing the work of the vessels. The treatment was carried out by suspending the animal for three minutes each day for 130 days.

J. G. Adami, M.D.—I do not know that I quite agree with Dr. Klotz in laying down the sharp difference between these two types of medial degeneration and intimal proliferation. Here, obviously, we have one simple and single cause producing the two orders of events in two orders of vessels of the same individual. We must look to the difference in structure and strain in the aorta and neck arteries respectively for the explanation of the difference. To me the simplest explanation is that in the wide aorta under the increased pressure, the distending force has been such that there has been excessive giving way of the media, and so great a stretching and strain upon the intima that its cells have not been able to respond by active proliferation, whereas in the smaller carotids and subclavians with their lessened lumina and relatively more powerful media the distending force has led to a lessened giving way of the media, the resulting strain upon the intima being within the limits leading to a strain hypertrophy and proliferation.

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NOTES ON THE MAYOS' SURGICAL CLINIC.

BY

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From a surgical standpoint the most interesting ten days of my life have recently been spent at St. Mary's Hospital, Rochester, Minnesota, and I thought it almost a duty, as well as a pleasure, on my return to tell the members of the Society something of the work being carried on in that little western town of nine thousand inhabitants by these remarkable men, William and Charles Mayo.

As it took me several hours to find it on the map, I might mention that it is situated 347 miles from Chicago on the North Western Railway, and the train leaving Chicago at eight at night lands one at Rochester sharp at nine next morning. Ten minutes later we can be at the Hospital, having missed only four or five operations for various kinds of hernia. There are two operating rooms, and they do on an average two operations an hour in each room. As there were twenty-four operations on the list for that Tuesday morning and they began at eight, it was two o'clock when they finished. At two o'clock they go down to their office in the town where their forty assistants, some of them partners, help them to make a diagnosis by every possible means; one doctor taking down the history and another taking the blood count, another making a urinalysis, and another does nothing else all day but analyse the fæces. Then another takes an X-ray, while another makes a cystoscopic examination. These examinations generally take a week or more, and when the scientific examination is complete the patient is brought before Dr. Graham, the chief of the office staff, who makes his clinical examination and diagnosis.

Rochester is the centre of the richest farming country in America, and the streets are lined with farmers' waggons as though every day

Read before the Medico-Chirurgical Society of Montreal, on 3rd April, 1908.

were a fair day. But many of the Mayos' patients are wealthy people, while many are doctors who are not wealthy, from distant cities, so that there are always some fifteen hundred people in the town who are being observed or operated on, or are convalescing from an operation. The great care taken in diagnosing is one of the elements of their success. The majority of the cases are people who have been suffering for years with what was supposed to be stomach and liver trouble, but the Mayos interpret these symtoms as either gall stones, or appendicitis, or both. They have even had some fifty cases for whom gastro-enterostomy had been performed for supposed pyloric or gastric ulcer, without benefit. In every one of these cases either gall stones or a stone in the appendix were found.

There are generally about twenty doctors visiting their clinic whom they receive most kindly to the number of fifteen hundred a year, so that their influence is becoming very widespread. For the benefit of the latter they have organized a Surgeons' Club, where the visiting surgeons meet every afternoon from four till six, to discuss the cases operated on each morning. Two doctors are chosen to report the cases at each meeting, and these are given special opportunities for seeing and hearing. A few of the doctors stay at the Kahler Hotel, a modern and expensive place, but most of them put up at the Cook House or at private boarding houses, of which there are a great many. In fact, every second private house has two or three or a dozen convalescent patients or visiting physicians as boarders. St. Mary's Hospital has only 175 beds, which are all filled after eight days operating, so that in order to get twenty-four beds they have to send that many out of the hospital every day to hotels and boarding houses, where they are visited by the assistant doctors or by a nurse from the hospital. At each of the hotels several nurses are employed steadily looking after the patients who have been sent out of the hospital. Even the gall-bladder cases go out in ten or twelve days with the drainage tube still in, while the appendicitis cases generally go out in a week. Sometimes want of beds compels them to cut down the number of operations to ten or fifteen a day.

The town has a modern water, electric light and drainage system, and is beautifully kept, having several miles of paved streets, and a public library of its own, having declined Mr. Carnegie's offer to build one for them. St. Mary's Hospital is thoroughly up-to-date with trained nurses, although under the financial control of the Franciscan sisters. The head sister has been Dr. William Mayo's assistant for sixteen years, and she is so proficient that when he stops operating to talk

to the doctors the sister goes on with the operation, half unconsciously perhaps. Three ladies give the anæsthetics, one in each room and a spare one who relieves the other two from time to time. One of these ladies, Miss Alice McGraw, has reported fifteen thousand ether anæsthesias. The method employed is very safe, although very extravagant with ether; namely, a continuous stream poured on to a chloroform mask. The eyes are covered with two little squares of rubber tissue so that no ether gets into them. It takes about six two-pound tins of Squibbs ether a day, which they buy in hundred pound cases. The patients all walk into the operating room and see the doctor, which, they say, gives them great satisfaction. If they are doubtful whether they will be operated on by the Mayos themselves or by one of the forty assistants it reassures them to see the great surgeon there before they go to sleep. After the patient is asleep an electric signal is given in the visiting doctor's waiting room, and they come in to the first operating room and remain until the signal is given that the other Doctor Mayo is beginning his operation, when they are all supposed to go and see it. On some days the operations alternate so quickly that one has not a moment to spare between them for several hours together. I attended the Thursday meeting of the doctors of the staff at Dr. Charles Mayo's house, when each doctor read an abstract of an important article in the Annals of Surgery or other journal, which we discussed. These abstract cards are then indexed and filed, and are frequently made use of in writing articles; one assistant does nothing else but prepare statistics and literary material for their reports. About twenty of the staff are doctors, each having a consulting room, to which the patients are distributed by two ladies. If the case is important enough or difficult enough to have one of the Mayos see it, the examining doctor presses a button which turns on a red light in the hall which tells Dr. William Mayo that he is wanted, while if it is a case of eye, ear, nose or throat, or general surgery, he will turn on a blue light notifying Dr. Charles Mayo to come to that room. Thus the Mayo brothers pass from room to room all afternoon. One assistant does nothing all day but make blood counts; another, microscopical examinations of urine and sputum. Another is engaged all the year round following up the cases, every one of whom is written to every six months. When a doctor has sent the case, he is written to and asked to keep track of the case and to let them know the result. The Mayos maintain, and I believe justly, that gall stones are more frequent than is generally supposed. The most reliable statistics are those of the post mortem room of Guy's Hospital, where the gall-bladder was examined in many

thousands of cases with the result that gall-stones were found in 3 per cent. of all the men, women and children who died there. Now, to apply that figure to the adults only in the United States, of whom there are sixteen million families, or thirty-two million adults, three per cent. of whom would be nine hundred and sixty thousand. Most of these people, Dr. Mayo says, are taking lactopeptine and pepsine for stomach trouble prescribed by regular doctors who have not diagnosed, or even suspected the condition, or phosphate of soda for liver trouble; or else these patients are taking patent medicines for dyspepsia in such enormous quantities as to make multi-millionaires of the vendors of them. Many of these patients get over their attacks of gall-stones and remain partly well for from five to ten years, and whatever treatment they were taking last gets the credit of curing them. One of them will make the reputation of a Christian Scientist or an Osteopath.

But sooner or later the gall-bladder becomes infected with colon bacilli, or the cystic duct or common duct becomes obstructed and the patient suffers severely from local peritonitis, which binds down the pylorus and duodenum, and he dies from starvation or jaundice, or, in a certain proportion of the cases, from cancer. During the first week of my visit the only death in the hospital while I was there was a man of seventy with cancer of the gall bladder. There would have been another death from cancer of the pylorus, but in this case Dr. Mayo opened the abdomen and verified the diagnosis but declined to do even a gastro-enterostomy, saying that he could not do enough good to warrant him in running the risk. He was sorry that he had even made the exploratory incision, because all the suitable operable cases in that man's neighbourhood would be influenced against being operated on early because that man was operated on too late. Dr. W. Mayo is one of the few doctors who realizes our responsibility towards the public when we operate on hopeless cases, or when a bad operator operates on a good case.

What impressed me most favourably about the Mayos was their perfect frankness. On the list of operations you see constantly "Explore gall-bladder, duodenum and appendix." After having taken precautions to make an accurate diagnosis by every means known to science, they frankly admit that they have not been able to make a pathological diagnosis, but they are quite satisfied to operate if they are sure that the patient has one of these things, any one of which demands surgical intervention. Dr. William Mayo said he did not feel at all ashamed to admit ignorance because it is sometimes impossible to make an exact diagnosis, and very often, if the symptoms were obscure, it was because there were several conditions present.

Just fancy forty-three gastro-enterostomies, for supposed ulcers of the pylorus, some performed by himself in his earlier days, which were not only unnecessary, but did so much harm that they had to be undone, and all for symptoms due to gall-stones, which were cured when the latter were removed! Nature had set up reflex spasm of the pylorus and forthwith her warning was neglected and another unnatural condition was added to the gall-stone inflammation. My sometimes wavering faith in pathology as a clinical help has been greatly revived by the practical use the Mayos put it to. Across the hall from the operating room is the laboratory, and by a preconcerted signal the pathologist is there with a dish as Dr. Mayo lifts out a uterine or other tumour; between sixty and ninety seconds later he returns saying there is cancer in that uterus and Dr. Mayo removes the cervix very carefully, or in the case of a breast, he removes all the glands; or he reports there is no cancer, which makes the latter procedure unnecessary.

To give an idea of the amount of work done, I will give the list for Tuesday, the day I arrived: 1, Removal of the thyroid; 2, Chronic appendicitis; 3, Chronic appendicitis; 4, Chronic appendicitis; 5, Acute appendicitis; 6, Chronic appendicitis and hæmorrhoids; 7, Explore gall-bladder and common duct; 8, Explore gall-bladder and remove appendix; 9, Remove gall-bladder and appendix; 10, Remove cancer of breast, including both pectorals and axillary glands; 11, Complete removal of tuberculous glands of the neck; 12, Removal of gall-stones and appendix; 13, Umbilical hernia and fissure of anus; 14, Hysterectomy for fibroid; 15, Radical cure for hernia and fistula in ano; 16, Vaginal hysterectomy for complete prolapse of uterus; 17, Hæmorrhoids (clamp and cantery); 18, Removal of tuberculous kidney; 19, Removal of appendix and Meckel's diverticulum. *Case* 5.—Exploratory club foot; adenoid and tonsils; 22, Abscesses; 23, Abscesses; 24, Removal of adenoïds and tonsils.

On Wednesday there was a case of cancer of the gall-bladder with a stone an inch long in the common duct, in a patient seventy-six years old and jaundiced. He had a section made of a piece of the gall-bladder and in one minute the report came back that it was cancer, so he removed the gall bladder and put in a No. 16 English soft rubber catheter into the common duct and sewed it in, and drained. *Case* 2,—Four or five facetted stones in gall-bladder and removal of appendix. *Case* 3.—Removal of appendix and shortening round ligaments by drawing them through an opening in external oblique fascia. *Case* 4.—Removal of appendix and Meckel's diverticulum. *Case* 5.—Exploratory incision for cancer of the stomach; could find no obstruction and closed up. *Case* 6.—Operation for tumour of uterus as large as a cocoanut;

there was only a shell left but he reconstructed a uterus out of it, admitting that he was running more risk than if he had done a hysterectomy. *Case* 7.—Removal of three-quarters of the thyroid for exophthalmic goitre, (about the four hundredth thyroidectomy). *Case* 8.—Double inguinal hernia transplanting cord. *Case* 9.—Umbilical hernia by a new method. *Case* 10.—Removal of breast for cancer; patient and family doctor were aware that she had the tumour two years; glands in axilla full of cancer; bad prognosis. *Case* 11.—Double inguinal hernia; and thirteen other operations, including removal of double cataract by Dr. Charles Mayo.

On Thursday, the 19th March, there were twenty patients anæsthetized; on glancing over the list I see there were five cases of gall-stones, all of which had been treated for years for stomach trouble with occasional bilious attacks. Six cases of chronic appendicitis, one simulating hip-joint disease, because it had eaten into the psoas muscle and one simulating doudenal ulcer; three hysterectomies for fibroid (one by vagina); three cases of inguinal hernia and three cases of cancer of the breast, glands of the neck, etc.

On Friday there were twenty cases, of which six were for appendicitis, four for gall-bladder, one tubal pregnancy, two hysterectomies one of which was pronounced to be in cancerous degeneration; three for hernia; one for renal fistula due to a piece of cystic kidney having been accidentally left in by another operator; and a rare tumour, a desmoid of the abdominal wall. There was also exploring for duodenal or pyloric ulcer, but symptoms were found to be due to peritonitis set up by the gall bladder.

On Saturday he had only fifteen beds, so only that many patients could be operated upon, among which were five cases of gall-bladder trouble, one cancer, an abscess which he simply drained; another was a stone in the common duct, also two gastro-jejunostomies for stricture of the pylorus; three appendectomies; one exopthalmic goitre, a double inguinal hernia, one amputation at the hip by a bloodless method; a large Kocher clamp with one blade sharpened being plunged into the tissues in front and another behind, which when closed completely controlled the arteries for an indefinite time, and rendering the operation practically bloodless. The rest of the cases were mostly for chronic appendicitis.

By Monday they had eighteen beds again so they did three appendectomies; three operations on gall bladder and common duct; three inguinal hernias, an umbilical hernia, a large broad ligament cyst; an exopthalmic goitre, an Alexander and two perinorraphies, a removal of the parotid, and removal of breast.

On Tuesday there were nineteen people anæsthetized: five for chronic appendicitis; three for gall-stones; three for ventral and inguinal hernia; one gastro-enterostomy; one vaginal hysterectomy for complete prolapse; one Alexander; one ligature of the external carotid, and one amputation of the breast. On Wednesday, 25th March, twenty people were anæsthetized, some of them having two or three operations. It was remarkable to see Dr. Charles Mayo excising a tubercular elbow and then remove a cataract in the next case. The list included two abdominal myomectomies for fibroid, in both of which Dr. William Mayo reconstructed the uterus; a teratoid dermoid cyst; two of gall-stones in the common duct; and a hydronephrosis due to kinking of the ureter owing to abnormal blood vessels holding the lower pole of the kidney in an abnormal position. One of the gall-stone cases had been operated on before in a distant city without relief, and Dr. Mayo said he expected that a stone had been overlooked. After a careful search he brought up the common duct into view and showed the stone before cutting into it. A cut directly over the duct came upon it, as large as a bean.

On Thursday, 26th March, there were fifteen patients operated upon, of which six were for chronic appendicitis, with long histories of stomach troubles; four gall-stone cases; one exploration of stomach for ulcer, and two removal of thyroid; the rest being various kinds of hernia.

On Friday, my last day there, they were short of beds, and only eleven cases were operated on, but one of them, the removal of the rectum for carcinoma, was one of the neatest operations I have ever seen.

The anus was first securely closed with a purse string of linen thread. Then it was separated from the sphincter ani. Then the incision was carried back to the coccyx. Then the rectum was detached from the levator ani and from the transverse perinei muscles, and from the vagina. Then all blood-vessels were cut between clamps and tied. All the fat in the recto ischial fossa was removed because it contained small cancerous glands. Then the peritoneum was opened and the sigmoid flexure loosened and drawn down. By this time he had seven inches of bowel hanging out, while the disease only went four inches. This was securely tied with linen thread, and a clamp put on just below it, and then the rectum was severed with the actual cautery between the two. He said that most of the failures were due to infection of the wound, and to avoid this danger he would leave the ligature on the intestine for six days, by which time the bowel would have grown to the sphincter ani and all raw surfaces would be healed. Then he would cut the ligature and empty the bowels. The operation was concluded by stitching the intestine to the levator ani and the sphincter ani, and

to the vagina. The patient was eighty-one years old, but having worked on a farm was very hale for her age. This operation is known as the Queening Tuttle operation and gives a much better functional result than the Kraschke operation, of which he has done seventy-five. It was practically bloodless.

Dr. Charles Mayo is strongly in favour of a proposition which had few supporters when the subject was discussed here a few years ago, concerning when to operate for cancer of the breast. He maintains that if we wait until we are sure that a tumour in the breast is cancer before removing it only twenty per cent. of our patients will be alive after three years. Of those twenty only four will be alive after six years. In other words, if we wait for the ordinary accepted symptoms, such as retraction of the nipple and enlargement of the axillary glands we might almost as well leave them alone. But if we remove every tumour of the breast, not the whole breast, with an inch of healthy margin, before the glands become infected, we will save every case. Even of benign tumours, he said, in his experience eighty per cent. eventually became malignant.

So that as long as the family doctor tells a woman with a small lump in the breast to leave it alone for six months we will continue to have these dreadful statistics after the most radical operation performed by the best operators. If, on the contrary, he would consider every growth in the breast of a woman over twenty-five as malignant when first seen and teach the public so, then even an ordinary operator will have a hundred per cent. of recoveries from the operation, and also a hundred per cent. of permanent cures. He said that in several hundred cases where he had to remove the two pectoral muscles and all the glands in the axilla, more than half of the cases had been under observation for more than six months by the family doctor, who was calmly waiting for the case to become hopeless before sending her to the surgeon.

The Mayos have been accused of not being original; they do not claim to be. On the contrary, they constantly tell their visitors where they picked up this good thing or that, and how much it brought down their death rate. Dr. Charles told me of a great European operator who has operated several hundred times for gall-stones, but who has never seen anybody else operate nor apparently read what anyone else is doing: result sixteen and a half per cent. of deaths instead of three. He often speaks of what he learned from Joseph Price of Philadelphia, and always with feelings of affection and respect; for instance, when removing the tubal pregnancy, he said, "Joseph Price used to tell us that it depended where the rupture took place whether the patient was taken to the surgeon or to the undertaker. If at the uterine end,

always the undertaker; if at the fimbriated end, the surgeon; if in the middle, sometimes one and sometimes the other, and sometimes both."

I was very much struck with his care in stopping bleeding, even the smallest vessels being tied. He remarked, "I have more time to tie this now than I will have to reopen this afternoon for secondary hæmorrhage."

He frequently called attention to the greater tendency to hæmorrhage when there was much bile in the blood which prevented it from clotting. He was very severe on the olive oil treatment of gall-stones. People frequently brought him three or four dozen of what they thought were gall-stones as large as bantam eggs which were simply balls of soap.

He removes the gall-bladder in about 35 per cent. of the cases, although he believes that the gall bladder mucus renders the bile less acrid. Speaking of his mistakes, he told me of a man who came to him for disease of the stomach; a few years ago he would have made the mistake of operating on the stomach, a mistake he had often made in former years. But on close enquiry he found a history of attacks of appendicitis dating back to when he was seven years old. So he explored the appendix, found it diseased, removed it and the stomach trouble disappeared from that moment.

Once when he operated on a patient for abscess over the gall-bladder and another for abscess over the appendix he remarked, "Don't be too inquisitive; this is no time to be poking around the peritoneum." However, in the appendix case he was inquisitive enough to feel around in the abscess cavity for the stone which caused the perforation and found it. He took care not to disturb the adhesions protecting the peritoneum. I have never seen any operator take such care to protect the peritoneum with gauze packing in cases where it might be soiled.

His operation for umbilical hernia is original; as such patients are always very fat and there is no muscle he makes an upper and lower flap of fascia which he makes overlap about an inch and a half. Of this operation I can only say that I wish I had known about it ten years ago. He called attention to the fact that women with umbilical hernia are very liable to have gall-stones which he always looks for.

Speaking of the importance of looking at the appendix when you have the abdomen open for something else, he related an incident which occurred when Ochsner of Chicago was paying him a visit. He had removed a myoma and was about to close when Ochsner said, "Are you not going to look at the appendix?" He replied, "Oh, it's all right, she has never complained of it." "Well," Ochsner replied, "it is worth

looking at, at least." So he looked for it and with difficulty got it out of a mass of adhesions, and besides found a large stone in it. After that he always looked at it, but left it alone very often till a year later, after removing an ovarian tumour with many adhesions and the patient going wrong he reopened and found that the appendix which had appeared quite healthy the week before was now gangrenous and she had a narrow escape for her life.

I have already mentioned his operating on fibroid uteri. Two of these were in young women who were most anxious to have a child. His experience has shown him that under 36 years of age myomas are generally single; after that they are mostly multiple. So, before he began, he said he intended to save or reconstruct the uterus. In shelling out these tumours, which were as large as an infant's head, he not only opened into the uterine cavity, but he tore away three-fourths of the uterine mucous membrane. He tied all bleeding points and then began to cut out a pattern of mucous membrane out of what was left corresponding to what one would see if one cuts open a virgin uterus. Then he hunted around for some muscle among the shreds and trimmed that up, but he saved all the peritoneum which he had peeled off the tumour. When he had sewed up the mucous membrane with 6-day catgut, turning in the mucous membrane like sewing intestine, and then the muscle, he obtained a very presentable uterus. He used his large flap of peritoneum to cover all the sewing and then he reattached the bladder to the uterus. He was quite aware of the risk he ran and was quite prepared to reopen all these cases on the fifth or sixth day and remove the uterus; this would be in about 10 per cent. of these cases. Both these women made perfect recoveries without a rise of temperature. I called his attention to the large cystic ovaries in both these cases and asked him if he would not snip a piece off the thick coat so that they would be emptied and not refill. He replied that 35 per cent. of appendages in fibroid cases were diseased, but as long as the tubes were patent he left the ovaries alone. He believed that conservative work on the ovaries meant a second operation every time. He only did two things to them; take them out or leave them severely alone. Even where he had to remove the uterus he left one ovary which afforded great mental comfort to the woman. He was strongly opposed to telling women with fibroids to leave them alone; thirty per cent. of them, he said, would become cancerous while many of the others would die from indirect results.

He said he had removed many myomas during pregnancy, even opening into the cavity of the uterus without the woman miscarrying; while

in other cases, where he was unable to remove a tumour which would obstruct delivery, he has lifted the tumour out of the pelvis and stuck the cervix down there instead and the women have had a normal delivery. If you have to interfere, don't wait for labour; do a Cæsarean section or a Porro at 8½ months.

I must not close without a few words about Dr. Charles Mayo's operation for goitre, of which he has done some five hundred cases. He has two expert assistants who follow him closely with hæmostats as he shells the cyst out of the gland, or the gland out of the capsule. It takes seven or eight minutes and the hæmorrhage seems terrible, but by the time they have put on between three and four dozen forceps the bleeding is stopped. These thirty or forty bleeding points are tied in ones and twos, and the oozing surface is dried with Harrington's solution. Then the edge is button-hole sutured, taking care that no muscular fibres are caught in any of the ligatures; he lost two in one day from this little mistake; the patient moved her head and the contracting muscle pulled off a ligature and there was a large hæmorrhage under the skin. His breast cases are also beautiful pieces of surgery. In the middle of the operation he removes a gland and calmly waits until the pathologist reports whether it is cancer or not; making a big or a small operation according to his report.

As both the brothers Mayo are most interesting speakers and fairly bristling with percentages of every kind and talking each about three hours a day, I have notes enough to make half a dozen little papers like this; while a summary of the information brought out in discussion by many able men from all over the continent at the Surgeons' Club would make as many more.

TWO CASES OF GUNSHOT WOUNDS OF THE UPPER END OF THE HUMERUS, REQUIRING INCISION OF THE HEAD OF THE HUMERUS.

BY

J. Guy W. Johnson, M.A., M.D.,
Cumpas, Mexico.

Both these cases were shot accidentally at short range, with soft nosed bullets, thus causing more damage to the parts than is usual.

Case I.—T. E., Mexican, age 22. About noon, on August 5th, while out hunting in the mountains, he fell, discharging his carbine (caliber .44). The bullet entered the anterior surface of the left arm, just above the level of the insertion of the deltoid. He lost a good deal of blood; but managed to crawl to a ranch, about five miles distance from the

scene of the accident, reaching there about 7 p.m. A doctor was called, and he removed the bullet, which he found lying just beneath the skin and superficial to the tip of the acromion process. He was brought to me at 1 p.m., August 7th, that is, forty-eight hours after the accident; his condition was then as follows:—

His pulse was regular, in volume and rhythym, small volume, low tension. T. 103°, P. 120, R. 24.

The radial and ulnar arteries were beating.

The left shoulder was very painful, and very much swollen, obliterating all land marks.

There was a ragged wound, about one inch in diameter, situated three and one half inches below the tip of the acromion process, and just posterior to the anterior border of the deltoid muscle. The bullet had travelled in an upward and outward direction, through the upper part of shaft and the head of the humerus, splintering them. At the tip of the acromion process there was a small incised wound caused by the extraction of the bullet.

There was no evidence of injury to any of the large nerve trunks; but the deltoid muscle seemed to be paralyzed, pointing to injury to the circumflex nerve. This I was unable to make sure, owing to the pain in the shoulder.

Examination of the chest showed signs of a slight bronchitis.

Owing to the man's poor condition I only washed out the wound (with 1 per cent. carbolic solution), and put a drain tube up into the shoulder joint. I gave him strychnine, and prepared him for operation next morning. The operation was performed under ether anæsthesia, in spite of the fact of the bronchitis, as his general condition was so poor, that I feared to give him chloroform.

Operation.—The incision was continued from the bullet wound upwards to the coracoid process, i.e., about four inches, this was practically parallel to the groove between the deltoid and the pectoralis major muscles and about one half inch anterior. The incision was through the skin and superficial fascia and fat. On separating the edges of the wound, the cephalic vein and a large branch of the acromic-thoracic artery were seen in the bottom of the wound, these were pulled to the inner side, and the fibers of the deltoid were separated with the handle of the scalpel, thus exposing the capsule of the joint and the upper part of the shaft of the humerus. On examining these with my finger the bone was found to be badly splintered, there being two longitudinal fractures extending down the shaft as far as the condyles, thus dividing the shaft into three pieces. The head and upper part of the shaft were broken into a great number of small pieces, some of which were devoid of

periosteum. All the loose pieces were removed first, later wherever they were adherent to the soft tissues, care being taken to save as much of the periosteum as possible; next the insertions of the muscles attached to the greater tuberosity were cut; the pieces of the head being held with lïon toothed forceps—all cutting being against the bone to save the periosteum. This was done with one blade of a pair of blunt pointed scissors. The insertions of the muscles attached to the lesser tuberosity were then dealt with in the same manner. This part was very difficult as I had no assistant beyond the anæsthetist. In all twenty five small pieces of bone were removed. The upper ends of the pieces of shaft were then drilled, and tied together with No. 4. chromicised catgut, as I was afraïd to use a permanent suture on account of the wound being septic. The deltoid was then sutured with interrupted catgut sutures, the wound was then packed with ïodoform gauze. The skin was sutured with interrupted silkworm gut sutures. Dry dressing with a Velpeau bandage with a large pad of absorbent cotton in the axilla were then applied. The operatïon lasted nearly two hours; the pulse rose to 140 so a hypodermic of strychnine 1/30 grain was given, the pulse rapidly came down to 124. A pneumonia jacket was applied as soon as he was put in bed.

After History.

August 9th. T-102, P. 110, R. 28.

Sibïlant and sonorous and coarse mucus rales heard all over the chest. Profuse muco-purulent expectoration (acute Bronchitis). The pulse a great deal stronger. Given an expectorating mixture. The dressing was reinforced on account of oozing.

August 10th. T101-102, P-98-104 R. 28.

Wound dressed, gauze removed and a rubber tube ïnserted, there being a very free sero purulent discharge.

The wound was dressed daily, the discharge gradually growing less, and the bronchitis gradually clearing up. On the 15th the strychnine was reduced to 1/30 grain.

August 20th:

Stïtches removed. Incision healed except where the tube is inserted. Temperature normal for two days. Lungs perfectly clear. Strychnine discontinued. A small piece of dead bone came away while the wound was being dressed. The discharge from the wound is very slight. There seems to be some wasting of the deltoïd muscle.

August 31st.

Patient walking around with his arm in a sling. Some dead bone can be felt in the bottom of the wound. Tube removed and gauze drain ïnserted.

September 10th:

Went home returning every second day for dressing.

October 15th:

Dead bone loose. Under ether three pieces of dead bone were removed and the bone and sinus curetted. The wound perfectly healed, the last dressing being on the 1st. of November.

Result:—The patient can move his arm freely in an anterior-posterior direction and to the opposite shoulder, or to the mouth. He can lift a ten pound weight off the ground and hold it for some time without tiring. He has perfect use of his hand and forearm; but cannot raise his arm to more than an angle of 45 degrees from the body. There has been a great deal of regeneration of new bone from the periosteum that was left, the total shortening being now, (Dec. 1), two inches. The deltoid is very much atrophied, whether the circumflex nerve was injured by the bullet or during the operation I am unable to say.

Case II:—(Mexican Woman aged 21). On August 20th., she was accidently shot in the left shoulder by a soft nosed revolver bullet, (32 caliber), at a distance of about three feet. The bullet entered the shoulder about an inch below the tip of the acromion process, making a wound about the size of a lead pencil. She lost very little blood at the time; but suffered at a great deal of pain. I saw the woman about three hours after the accident.

Condition when first seen: Mexican woman of age 21. Two months pregnant. Well developed, large amount of subcutaneous fat making it difficult to make out the bony points. Complaining of great pain in the left shoulder. Pulse regular in volume and rhythm, good volume and tension, 88, temperature 98°, respiration 24. No sign of shock. I was unable to find any crepitus, but as the pain was so great I anæsthetised her: I was unable to locate the bullet which seemed to have disappeared under the deltoid muscle, even under chloroform I was unable to make out any crepitus.—I made no great search for it. The humerus moved freely in every direction. I inserted a rubber drain in the wound. I then made arrangements to have her transported to the hospital, a distance of 15 miles. As there were no roads she had to be carried on a stretcher. On account of the great heat in the middle of the day here, this was done early on the 21st. She arrived at the hospital about 11 a.m.

On arrival temp. 100, pulse 110, resp. 24. Very slight discharge from the wound, but its edges looked red and angry.

August 22nd.

T. 102, P. 110, R. 244. Free flow of pus from the wound, which was extremely tender. On moving the shoulder the head of the humerus was

felt to move over some solid body, crepitus was also elicited. The patient was very restless; but absolutely refused any operation at this time. The wound was irrigated daily with 1 per cent. carbolic solution and hydrogen peroxide. Notwithstanding this her condition did not improve. Her pulse and temperature keeping up.

August 26th:

There is a pocket of pus to be felt in the arm about and just internal to the insertion of the deltoid muscle. The pus can be pressed from here to the bullet wound.

August 28:

Patient consented to operation, which was performed at 9 a.m.

Operation:—Chloroform anæthesia. Duration of operation 45 minutes. A vertical incision 4 inches long was made through the bullet wound, to the tip of the acromium process, to try and locate the bullet. The fibers of the deltoid were then separated with the handle of the scalpel. On rotating the humerous outwards, a hole, the size of the bullet, was seen in the capsule of the joint. The hole in the capsule which was just internal to the long tendon of the biceps was enlarged and the joint explored with the finger. A great deal of pus was expressed from the joint. The head of the humerus was found to be badly shattered into a large number of small pieces. These were extracted, and the joint again examined. It was found that the damage was entirely intraarticular, and chiefly the lower part of the head being damaged, and that by simply removing the remaining articular portion of the head of the humerus and leaving the tuberositi a useful arm could be obtained. A Gigli saw was introduced into the joint and the head sawn off along the line of the anatomical neck. In all ten pieces of bone were removed from the joint. The bullet was not found, it having passed through the capsule below and disappeared in behind the subcapsularis. A stab wound puncture was made behind the acromion process to establish through and through drainage. Rubber drainage tubes were inserted in both wounds. Another stab wound puncture was then made at the insertion of the deltoid to drain this pocket of pus, and another tube inserted here. The separated fibers of the deltoid were then brought together as much as possible with catgut sutures, and the skin wound closed at the top and bottom with silk worm sutures. Dry dressing applied. A large pad was inserted into the axilla and a Velpeau bandage applied.

After History:—The patient made a rapid recovery, the discharge of pus rapidly decreasing, and the temperature falling to normal, only once reaching 100°. The drainage tubes were removed on the 8th. day—

she sat up on the 9th. day—passive motion was begun on the 10th. day entirely healed in four weeks, at which time she was discharged.

Condition when discharged:—There was one half an inch of shortening in the length of the humerus. The deltoid was intact and showed no signs of atrophy. She was able to raise her arm to the horizontal without rotating the scapula and by rotating the scapula she was able to raise it to an angle of about 135° with the body. She was able to bring her hand to the back of her head without any exertion, she could also touch the opposite scapula from behind. In fact to a casual observer one would not notice anything the matter with her arm.

History of the Operation for Excision of the Shoulder:—Excision of the shoulder as first performed by Bent of Newcastle in 1721. It was next performed by Orred of Chester in 1778. In 1786 Morreau, the elder, excised not only the upper end of the humerus, but also the portion of the scapula supporting the glenoid fossa and part of the acromion process.

Syme placed the operation amongst the recognized operations of modern surgery. The earlier operators exposed the joint by raising a flap from the deltoid region. The credit of introducing a single anterior incision, now in general use, is ascribed to Baudens and Malgaine. Orred, however, had before this used a longitudinal incision from the socket of the shoulder to the insertion of the deltoid.

Chassaignac in 1844 first drew attention to the advisability of preserving the long head of the biceps. Oliver deserves the credit for perfecting the sub-periosteal method.

Main Indications for Excision of the Head of the Humerus:—

(I) Different forms of arthritis disorganizing the joint, and resisting careful treatment in subjects, whose age and general conditions are satisfactory.

(a) Tuberculosis with caries.

(b) Disorganization of the joint after rheumatism, gonorrhœal rheumatism, wrenches, etc., with ankylosis in young subjects.

(c) Osteitis with suppuration, caries etc.

(d) Epiphysitis, acute necrosis, exhausting the patient, where the outlook for a natural cure is bad.

(e) Disease of the deltoid bursa ulcerating into the joint and setting up a destructive arthritis.

(II) Gunshot wounds, where the large vessels and nerves have escaped injury, and where fragments of shells, bullets, etc., are lodged in the head of the bone, especially if the shaft of the bone has not been much damaged.

(III) Compound dislocation and compound fracture with much damage to the capsule and cartilage of the bone, the large vessels and nerves being intact.

(IV) Some cases of ankylosis.

(V) Some cases of unreduced dislocations of the head of the humerus.

(VI) Fracture of the upper end of the humerus, with dislocation of the head of the humerus.

VII) Recurrent dislocation of the head of the humerus.

(VIII) A few cases of new growth of the head of the humerus.

As both my cases were due to gunshot wounds, I will deal only with that indication.

In gunshot wounds about the head of the humerus we have three possible methods of treatment:—

(I) Trusting to antisepsis and drainage, with removal of loose fragments of bone.

(II) Excision of the head of the humerus.

(III) Amputation of the arm at shoulder joint.

Professor Ollier says:—

"That if the head only is fractured, and not into more than two or three pieces, and these not widely separated, then trust to antisepsis, if later suppuration occurs, then resect;—but if the head is badly shattered and the fragments are separated, perform a primary restion, endeavoring to shape the upper end of the humerus into a new head."

"If the damage extends not more than four centimeters, then remove all damaged bone; but if the damage extends further than that, you have to leave part of the damaged bone. Even if the shaft is splintered, resect, if the soft parts are fairly sound."

Professor Ollier is very pronounced in stating that you must save all the periosteum possible, also that you are not to use the bullet wound in place of the recognized incision.

Amputation is called for, when in addition to the damage to the bone, either the large vessels or nerves are damaged, or the soft tissues are so damaged that a useful forearm is out of the question.

In any case of gunshot wounds the amount of damage done depends mainly on three things:—

(a) The nature of the missile.

(b) The distance of the person from the weapon.

(c) The velocity of the missile.

Steel-jacketed bullets with smokeless powder cause much less damage than the soft nosed bullet.

In all cases of excision of the head of the humerus, one must consider what result can be expected.

Longmore, in his Resection of the shoulder in military surgery, pp 12, says that loss of the elevating power of the deltoid, must be accepted, like the loss of the rotating powers, from the division of the muscular insertions into the two tubercles, as a necessary consequence of the resection of the head of the humerus.

Sir J. Erickson says:—

"The four chief movements of the shoulders are:—

(a) Abduction and elevation.
(b) Adduction.
(c) and (d) Movements in an anterior and posterior direction.

These last two are the most important in the trades for the guidance of the hand. These are retained, while the two former are, to a great extent, lost by this operation.

PRIMARY CARCINOMA OF THE APPENDIX.

BY

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Miss E. Y., aged 21, was admitted to the Royal Victoria Hospital October 1st, 1906, complaining of pain in the right lower quadrant of the abdomen.

Seven years ago she had for a short period what she calls a "dead soreness" in this region, which was aggravated or brought on by overexertion. She frequently complained of pain in this side when menstruating; otherwise her general health has been good.

Four weeks ago, however, she had an usually severe attack of pain, accompanied by vomiting, necessitating her confinement to bed at that time for a day or two, and since then she has had in all five similar attacks. In the intervals she was free from pain but there was an abiding tenderness on pressure in the right side. Examination on admission revealed some tenderness to pressure at or about McBurney's point, and a small tender mass could be palpated two fingers' breadth below a line running from the umbilicus to the anterior superior iliac spine.

On October 4th, incision revealed a slightly adherent appendix, constricted three quarters of an inch from the base and very much distended at its distal portion. There was little evidence of peritoneal inflammation old or recent.

The patient made an uninterrupted recovery and from the last report has remained perfectly well.

Section of the appendix showed complete occlusion for about one inch, the distended and thinned out terminal part containing clear mucoid material. At the operation this was regarded as a typical example of obliterating appendicitis and I am indebted to Dr. Keenan for the opportunity of adding another case of primary carcinoma of the appendix to the rapidly increasing number of such cases now recorded.

Microscopical examination showed that the occluding mass was not an inflammatory nodule, but a cubical celled carcinoma infiltrating all the coats of the appendix.

I need not add but for the routine examination of all morbid material in the surgical clinic this case would have passed unrecognized.

I am indebted to Dr. Mackay of Grenville, who sent the patient to the Hospital, for the opportunity of securing the specimen.

II.

The second patient, I. F., a girl aged 13, was admitted to the Royal Victoria Hospital on March 19th, 1907, complaining of pain and tenderness in the right iliac region. Dr. Harwood of Malone, who had charge of the patient previously, stated that on March 13th, she had been suddenly seized with severe pain in the right iliac region with nausea and vomiting. Extreme tenderness soon developed in the appendix region associated with an increased pulse rate and moderate fever.

When admitted the patient's condition strongly suggested a perforated appendix with localised peritonitis and she was operated on immediately. The appendix was found lying over the brim of the pelvis, which latter was filled with pus. On freeing the appendix from very slight adhesions its distal third was found dark, gangrenous, and distended, measuring one inch in diameter and showing a small perforation. The proximal two-thirds exhibited slight congestion of the serosa only.

Examination of the removed appendix showed a small new growth blocking the lumen just proximal to the swollen portion and this latter consisted of a distended gangrenous appendix well filled with pus.

Sections of this growth showed it to be a small cubical celled carcinoma markedly resembling a rodent ulcer.

The greater portion of the mass projected into the lumen, but it also invaded the muscular coats and a few groups of the tumour cells lay just beneath the serosa. The small cubical cells of the tumour were quite distinct in type from the tall columnar cells lining the remaining lumen of the appendix and transition forms could not be found.

The patient made an uneventful recovery and at the present time, a year later, is in perfect halth.

Until quite recently carcinoma of the appendix, unless secondary to cæcal cancer, has not been recognized or recorded except in a very few instances. In late years systematic examination of all appendices removed has revealed the fact that primary carcinoma of the appendix is not a rare condition, for the above two, with those previously recorded make eighty-four cases of primary carcinoma of this organ.

It is interesting to note that most if not all of these cases were diagnosed only when the nodule was sectioned. This is true of our two cases and they both illustrate well one type of the so-called "Primary Carcinoma" of the appendix, occurring as it so frequently does in young people, Brandts[1] having reported a case in a seven year old boy and Zaaijer[2] another in a girl of twelve. Vassmer[3] in a recent communication has stated that such growths do not give rise to any symptoms until appendicitis develops and believes that the nodule is indirectly responsible for the onset of the inflammatory symptoms. Cases are recorded, however, where such growths were discovered quite accidentally on the post-mortem table, or where laparotomy had been performed for some other condition.

A careful histological study of our two specimens shows that the new growths originated in the submucosa, possibly from embryonic rests, for the small cubical cells composing the growths are quite distinct and apart from the tall columnar cells lining the remaining lumen of the organ.

Some pathologists have termed these nodules "endotheliomata." We must regard such growths as carcinoma in spite of their small size, slow growth, not recurring when the appendix is removed, nor giving rise to metastases, which, as already pointed out, infiltrate contiguous tissues.

[1] Brandts: Munch. med. Woch., 1907, s. 1780.
[2] Zaaijer: v. Brunnsche Beitrage z. Klin. Chir., Bd. 54, H. 2, s. 239.
[3] Vassmer: Deutsches Zeit. f. Chir., Bd. 91, s. 445, 1908.

BROMURAL: A NEW SEDATIVE AND HYPNOTIC.

BY

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During the past twenty-five years many new preparations, mostly synthetic, having varying degrees of sedative and hypnotic power have been added to medical armamentarium; beginning with paraldehyde (1882) there followed at varying intervals urethane, amylene hydrate, chloralamid, somnal, trional, tetronal, and recently veronal and proponal (1903).

The first observations recorded of all these new preparations were uniformly glowing tributes to their satisfactory action and harmless nature. Subsequent experience, however, has shown some of them to be not only useless but also distinctly harmful, while many have justified their introduction and have come to stay. Any new hypnotic, which may be brought to our attention, must prove, therefore, that it possesses some distinct advantage over our present therapeutic agents. Such a progress has been accomplished, I believe by Dr. E. Saam, who succeeded in 1907 in isolating a new substance, alphamonobrom-isovaleryl-urea, which he calls bromural, having the formula $(CH_3)_2$—CH—CHBr—CONH—$CONH_2$.

Bromural occurs in the form of small white flakes. It has a very faint odour suggestive of valerian, and a slightly bitter taste which lingers on the tongue. It is easily soluble in hot water, alcohol, ether, and alkaline solutions, but practically insoluble in hot water.

The physiological action of bromural depends depends chiefly on the combination of the isopropyl molecule with valerianic acid, which is intensified by its chemical union with urea and the introduction of the halogen molecule bromine.

According to the pharmacological investigations of Prof. v. d. Eeckhout, as ascertained by animal experimentation, bromural given by mouth, acted as a prompt hypnotic. There were no injurious secondary effects. The drug showed a selective action on the cerebrum, not influencing either the medulla oblongata or spinal cord. The circulation and respiration were but slightly affected. The lethal dose for a rabbit appeared to begin at 1 gramme per kilo body weight of animal. The human subject requiring a much smaller dosage to produce a hypnotic action, there is but little possibility of dangerous secondary effects.

The clinical investigations of Drs. H. Krieger and R. v. d. Velden, instituted at the University Medical Clinic in Marburg, confirm in general these pharmacological findings. They report that bromural acts as a nerve sedative when taken in doses of 5 grains several times daily. When administered just before retiring in doses of 5 or 10 grains it acts as a hypnotic in 5 to 25 minutes. Larger doses do not produce any stronger action. In all cases the effect probably wears off in 3 to 5 hours. In those cases where sleep extends beyond this period it is owing to the fact that natural sleep has been added to the primarily induced hypnotic state. In case this natural sleep fails to occur, a repetition of the original dose procures the same result as before. No secondary action or injurious by-effects on stomach and intestines, central nervous system or circulation were noted. Narcotic

after- effects there were none. The drug was well borne, even in cases of heart disease and gastro-intestinal derangements. In no case was there ever any sleepiness or heaviness the next day. The drug proved of especial value as a hypnotic in the aged.

It seems that no "habit" is induced by continued use, nor appears any cumulative action to occur, as has been so frequently acted with other hypnotics. This may be due to the rapid disintegration of the preparation within the system and its speedy elimination by the excretory organs.

That bromural is free from by- and after-effects and easily borne by all as compared with those hypnotics having a stronger narcotic effect is shown by Dr. Th. Runck, in his reports on the drug when used on children and nurslings, suffering from restlessness and sleeplessness. Doses of 0.1 gramme several times daily were well tolerated without any disturbance of the stomach or kidneys. Prof. E. v. Leyden reports favourably on the drug and says that the sleep induced is in all respects a natural sleep, the patient on awakening feels refreshed and rested and does not experience any drowsiness or depression.

All authors agree that bromural is primarily of value as a nerve sedative and, therefore, indicated in cases of cramps and epileptiform attacks (Linke), eclampsia, especially in children (Runck), mental work and worry, hysteria, nervous dyspepsia, and cardiac neuroses (v. Leyden). It is also a harmless and generally successful hypnotic in mild and and moderately severe cases of insomnia accompanying the more serious organic diseases, such as pneumonia, phthisis, nephritis and cirrhosis of the liver, etc (Runck, Krieger and v. Velden). Runck calls attention to the beneficial effect of bromural in cases of excessive night-sweats. Bromural has been used successfully in treatment of the insane by Dr. A. Würschmidt, who believes that the drug will in the immediate future acquire an important position as a hypnotic and sedative, especially in cases of female insanity.

According to Krieger and v. Velden, bromural fails in all cases where pain, cough, angina pectoris and excitement or delirium exist; it can, therefore, only be regarded as possessing a mild hypnotic action.

It is not a powerful hypnotic and fails in all cases accompanied by pain such as gout, rheumatism, neuralgia, pleurisy, etc. As a simple nerve sedative, however, I have used it with uniform success, especially in such mild forms of nervousness in which we are reluctant to use the more powerful narcotics with the attendant dangers of forming a drug habit, cumulative action, and other injurious after-effects.

Bromural, I consider especially efficacious in all forms of nervous excitability and insomnia so frequently associated with cases of mental

overwork and financial worry, hysteria, mild alcoholism, excessive use of tobacco with cardiac irritability, nervous dyspepsia, and in the first stages of rest-cures for neurasthenia, when a harmless sedative is absolutely requisite. In all but one of my cases it was taken without any untoward effect. In this one case (10 grs. on retiring) it was followed by headache and dizziness on the next day; this patient, however, told me she could never take valerian without the same effect, and because of the faint odour suspected the latter drug in the prescription. It may therefore have been a case of auto-suggestion. Otherwise, I have never noticed any bad effects. It has never caused a rash or any of the other symptoms obtained with the bromides, nor did it show the stimulating effects of valerian. In all my gastric cases it was extremely well borne and caused no derangement of stomach or intestines. As regards methods of administration, it is best dispensed in tablet form or in capsules. In general nervousness 5 grains every three hours is sufficient. As a hypnotic 10 grains given at bedtime is necessary. Children can in general take 2 to 3 grains several time daily. For babies, 1 grain is sufficient (Runck).

Bromural is more rapidly absorbed when given dissolved in hot water sweetened with a little sugar. Some very delicate patients, however, objected to this, owing to the taste of the valeric acid. I have, therefore, used the following formula instead:—

℞ Bromurali. gr. LXXX
Elix. Simplex.
Spts. Vini Rect. aa ℥ii.
Spts. Menth. pip, gtts XX
M. & Sig: 3ii q. 3, h. (as sedative).
Vel 3ss on retiring (as hypnotic).

This is more palatable, and was readily taken in every case.

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GUNSHOT WOUND CAUSING RUPTURE OF BOWEL WITHOUT DAMAGE TO PERITONEUM.

BY

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The following autopsy is reported with the kind permission of Dr. H. Campbell Highet, M.O.H., of Bangkok.

On February 25th the bodies of two Indian pedlars were sent into the Police Hospital for autopsy. They had been shot by dacoits two days before, when about eighty miles up country. At the time of the assault they were lying down in their boat. The police report is to the effect that they were lying down and that they were taken by surprise.

One of them, whose body was riddled with modern, high velocity bullets, died at once. The body of the other, who lived for about thirty-six hours, presents the following wounds:—

(1) A large punched-out wound with blackened edges, on the right side of the abdomen, just below the costal margin, in the anterior axillary line, in size about one inch by three-quarters of an inch.

A probe passes in for about one inch but does not enter the abdominal cavity.

(2) A small punctured wound, one-quarter inch in diameter, four inches below the left nipple and just internal to it. Probing this wound shows it to be in direct communication with (3) a large irregular wound with everted blackened edges surrounded by much cutaneous discolouration on the anterior wall to the right of and slightly above the umbilicus.

(4) To the right of this again are two longitudinal abrasions with dried blackened blood at the edges and blue discolouration about them. They look like "grazes."

(5) A penetrating punctured wound of the left arm. There is no noticeable difference between the entrance and exit wound in this case. Very slight laceration of the muscle tissue between them.

On opening the thorax the pleuræ are found clear, no fluid, no adhesions, the lungs are large and healthy and the heart apparently normal.

The abdomen shows free bowel contents. The omentum is shoved over to the right side. The gut is reddened throughout and shows a recent plastic exudate. There are a few slight adhesions between the coils of small intestine, but not of any great extent or firmness.

With the exception of a few epiperitoneal extravasations in regions corresponding to wounds (1) and (3) and (4), the parietal peritoneum

is intact. Its continuity is nowhere destroyed. The small intestine is found ruptured clean across at right angles to the long diameter, ten feet from the pylorus. All the abdominal organs are normal. A solid mass felt in the right lower anterior abdominal wall is found to be a large leaden slug, three-quarters inch long, embedded in the tissue of the external oblique muscle, on a level with and just inside the anterior superior spine, its point of entrance being proved by dissection, to be wound No. (1).

In the absence of a history of a hand-to-hand encounter, and in the absence of any abdominal bruising not connected with actual gunshot wounds, the most feasible explanation of the rupture would be that it was caused by the impact of the slug.

Such cases are rather rare, and this is my reason for reporting this one.

Similar cases are noted in Taylor, on Medical Jurisprudence, and in Lyon and Waddell, Medical Jurisprudence for India—but in each of these large reference books one case only is mentioned.

THE SPIROCHÆTE PALLIDA: ITS RELATION TO SYPHILIS, A REVIEW OF THE LITERATURE.

BY

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In trying to place the present position of the spirochæte pallida before you I cannot begin better than to quote to you at some length, and somewhat liberally translated a paragraph from Hoffman's most recent work, dedicated to the memory of his co-worker, Fritz Schaudinn, who died, in June, 1906, a little over one year after his famous discovery

"Although," says Hoffman (14) "the pathology, diagnosis and treatment of syphilis during the last century had been thoroughly worked over and had reached a high degree of perfection, it cannot be denied that, at the beginning of this century syphilitic investigation was dead. Again and again all efforts to overcome the darkness surrounding the etiology of this, so evidently contagious a disease, had led to failure and disillusion. Many, therefore, of our best workers had turned away from the problem and the conviction became more and more widespread that syphilis was a disease peculiar to mankind, not inoculable to animals, and therefore not suitable for experimental work and that the organism which caused it could not be discovered by the present optical, bacterio-

logical and parasitological means." Very early in the century, however, fresh impetus was given to syphilitic investigation through the discovery by Metchnikoff and Roux of its inoculability to the anthropoid apes. Though previously much work had been done on this subject, notably by Neisser, yet a cloud of doubt hung about all published results, and it was not till a chimpanzee, inoculated on 12th June, 1903, showed a primary sore succeeded by a secondary ulcer, that we obtained the first undoubted case of syphilis in the lower animals. The history of this animal is, perhaps, not out of place here.

A two years old chimpanzee (14) (Troglodytes niger), was inoculated on the prepuce on June 12th, 1906, with the secretion from a hard chancre. Twenty-six days after a vesicle with some erosion and induration—a chancre—appeared at the site of inoculation, followed by typical adenitis in both groins. Fifty-six days after inoculation an exanthematous papule appeared on the belly, and this latter went on to ulceration. Three and a half months after inoculation the ape died, with general glandular swelling and enlargement of the spleen.

Not only then did this prove the inoculability of syphilis to lower animals, but also that the disease was comparable to that in man, exhibiting a period of chancre and primary adenitis, and a period of general infection as manifested by general glandular enlargement—splenic enlargement and exanthem.

Rapidly these findings were confirmed and extended, till, to-day, we know from Metchnikoff and Roux, Neisser (49), (50), (54), Berterelli, Siegel, and many others, not only that the anthropoïds are very susceptible to syphilis, but that the primary stage, at least, can be induced in lower apes, such as the Macacus, or the Hapale Jacchus and Pavian monkeys, and that lesions which may perhaps be regarded as secondary (14), (45), at times occur (Siegel). Not only this, but the secretion from the primary sores can be reinoculated and reinoculated with similar results, and further still, the blood and pieces of the internal organs (53) of syphilitic apes will on inoculation cause a typical primary sore. In fact, as the series of inoculation lengthens the disease becomes more virulent for the monkey, and according to Metchnikoff, less virulent for higher apes and man, so that hopes of establishing an immunity are entertained by these observers. (53)

Still another series of inoculation experiments has been made by Berterelli (54), though his priority is questioned. Berterelli succeeded in transferring syphilis to a rabbit's cornea. By taking syphilitic material, scarifying the cornea and rubbing in the material he obtained, after two or three weeks, a parenchymatous keratitis which, after ten

to twenty days, again disappeared. By excising the eye, breaking up the corneo and reinoculating, he was able to cause a successive keratitis through a series of 15 ([14]) or more rabbits, (repeatedly), and from one of these corneæ to cause a typical primary lesion in the macacus. The sheep, dog, and guinea pig have also been proved susceptible to this keratitis.

Metchnikoff and Roux' discovery thus naturally aroused many to further investigation, not only along the above lines of animal inoculation, but also with the result that two microorganisms came upon the field as the possible cause of syphilis. The first of these was described by Seigel ([38]) of the Zoologisches Institut, Berlin, early in 1905, and called by him cytorrhyctes luis. He considered it a protozoan, found in the blood, organs and lesions of primary, secondary and tertiary syphilis (Berl. Kl. Woch., No. 28, '05). He claims to have worked out a rather incomplete life history. The organism is analogous to the scarlet fever bodies described by Mallory, and a large number of observers have confirmed its existence in syphilitic lesions ([32]), ([38]), ([40]), ([45]), ([46]), ([56]), ([48]), ([49]), ([39]), and not a few claim to have found it in non-syphilitic cases, and consider that it represents some degeneration form of a normal cell. Siegel also claims to have induced syphilis in monkeys and to have demonstrated these bodies in the lesions. He has thus made out a rather strong case for his bodies and has done much excellent experimental work; his results, however, have not been generally accepted, ([23]), ([47]), ([19]), ([49]), ([54]), and we must await further developments. Siegel and his adherents, Schultze and Saling ([32]), ([38]), ([40]), ([44]), ([45]), ([46]), ([56]), ([4]), have been throughout the strongest opponents of the second microorganism put forward, the spirochæte pallida, as the etiological factor in syphilis.

It is said that it was while endeavouring to confirm Siegel's findings that Schaudinn of the Kaiserliche Gesundheitsamte, Berlin, and Hoffman, of Universitats Klinik fur Haut und Geschlechtskrankheiten, Berlin, first discovered the spirochæte pallida. Their work was first published in the Arbeiten aus der Kaiserlichen Gesundheitsamten, Berlin, April 10, 1905, and in the Deutsche Medizinische Wochenschrift, May 4, 1905. It was almost immediately confirmed by Metchnikoff and Roux (Bulletin de l'Académie de Médecine, Paris, May 16, '05), who drew attention to the fact that three years before, Bordet and Guigon had observed the same organism in a syphilitic chancre, but as they failed to find it in some secondaries, did not pursue the matter further.

Schaudinn and Hoffman first found the organism in the primary sore, sclerosed and closed papules, enlarged glands, condylomata, and in

the spleen. Buschke and Fischer ([9]), and Levaditi ([39]) very shortly announced its presence in the internal organs of congenital lues. Control examination showed it absent in non-syphilitic lesions. The organism is described as follows (S. and H.). It is 4 to 10 μ long, the average being 7 μ. In width it varies from an immeasurable thinness to ¼ to ½ μ; the number of spirals is 3 to 12, or even 20. It is difficult to see in the fresh state and is extremely refractory to stains, so that special methods are necessary. The poles terminate in sharp ends, there are no flagella and possibly an undulating membrane exists. It is motile and can rotate on its long axis, progress forwards and backwards and bend the entire body. The stain recommended by Schaudinn and Hoffman was the Giemsa malaria stain, and it was on account of its pale staining properties that the name spirochæte pallida was given it.

From all over the world ([8]), ([10]), ([11]), ([16]), ([17]) ([18]), ([19]), ([20]), ([21]), ([23]), ([24]), ([26]), ([28]), came confirmation of Schaudinn's findings, and many modifications of technique for the discovery and staining of these bodies, so that while in April its discoverers had expressed themselves most moderately as to its etiological significance, so great was the confirmation that by October ([7]) they did not hesitate to state that they believed the cause of syphilis had been discovered, and to-day the scientific world accept the fact that in syphilis a spirochæte with the above characteristics is to be found with remarkable constancy. Let me illustrate its occurrence from some of the earliest publications. Siebert (Deut. med. Woch., p. 1642, 1905) of Breslau, examined 125 individuals, 73 were syphilitic, 6 doubtful, and 46 suffered from other diseases. Of the 73 syphilitics, 6 were tertiary, and showed no spirochæte pallida was found. The 46 controls were all negative. On this side of the Atlantic, Flexner, in June, 1905, found spirochæte pallida in three syphlitics, and none in three non-syphlitics..

Muhlens in 20 chancres found the treponema pallida in all, while 9 controls were negative. Of 7 glands examined, 6 gave positive results. In one case, where syphilis was not suspected, spirochætæ were found, and the patient later on developed positive signs of the disease. In 31 fœti, which came from unknown sources, he was able to make a diagnosis of syphilis from the presence of this microorganism in 15, and to confirm his findings later by comparing them with the clinical histories. The remaining cases were not syphilitic with one partial exception.

These are merely picked at random from over a hundred papers which appeared between May and October, 1905, "most of which were confirmatory," as Hoffman says ([7]).

It should be mentioned, however, that Schaudinn and Hoffman (4) at the time of their first communication also described a second spirochæte, larger, thicker, staining more darkly and of a somewhat different shape which has no relation to syphilis, but was found in various ulcerated lesions, and which they named spirochæte refringens. Attention being called to this little studied group of organisms many others at once came into prominence (4), (5), such as sp. buccalis, plicatilis, the sp. of ulcerating cancer; of Yaws, the most like the sp. pallida; of Vincent's angina, sp. dentina, etc. Naturally, from its widespread occurrence the spirochæte refringens caused the first controversy as to the etiological significance of spirochæte pallida. Siegel and Schulze, among others, claimed that these two were identical, but gradually, as observers became more proficient in discovering the pallida, this view has lost ground. To a practiced observer the difference is striking, nevertheless at times confusion may arise. The essential differences are the many curves and their small size, and corkscrew-like appearance, the pointed ends, and the pale staining properties of the pallida.

At first the sp. pallida was only found in primary lesions, in glands in condylomata and mucous patches, but rapidly observer after observer discovered it in all secondary lesions and in congenital syphilis, and, finally, it has been reported in tertiary lesions (51), (14), so that at the present time it has been found in all syphilitic lesions except the parasyphilides, such as Tabes, etc, (see Hoffman's Atlas (14)). Here, however, we come to an important point. In a thin smear it is difficult to find the spirochæte, stained in tissue it is extremely difficult, so that while it has been frequently found in tissue by Giemsa's stain (17), the majority of the tissue work has been done through staining by silver nitrate as put forward by Levaditi (27), (36), (19), (33), (52), (42), (and modifications). It is on this point that the second controversy has arisen. Those who oppose (1) the etiological significance of the spirochæte pallida claim that the silver stained spirochætæ are not spirochæte, but artifacts representing stained nerve and tissue fibre altered by the syphilitic process. The evidence is, however, too strong for such a view (36), (47), (60), (34), (23), as these forms bear a remarkable relationship, not only to the presence of syphilis, but also to its degree and virulence, so that on the whole the question has rather established the value of the silver spirochæte.

In all lesions the spirochæte tends to be found in certain situations. In the primary it is perivascular (36) or in lymph spaces; in roseola (14) it is in the deeper layers of the skin between and in the cells; in lymph

glands, in lymph spaces, and in the trabeculæ, rarely in the cells, in the spleen; in the liver ([14]), in and about the liver cells, so with the adrenal (cortex) and kidney. They have repeatedly been seen in blood cells, and have on some occasions been stained from the circulating blood. In the lung they occur about the vessels and bronchi, and in the alveolar septa, and in epithelium, and they are found between the fibres of the heart. In short, in the lymph spaces, perivascular, in trabeculæ and in the epithelium are the chief sites where they are to be looked for. In gummata they were long sought for without success, but it now seems that they do actually occur, but not in the ulcerated area (hence, the non-infectious character of these), but in the fibrous periphery. If, then, we accept the silver spirochæte there is no gap in its distribution.

We can go still further. In all the experimental lesions in apes, monkeys, rabbits, sheep, etc., which we have already described, it is possible by the methods above described, and also in the fresh unstained state, to demonstrate it in its living motile state. ([23]). This is a fact of enormous importance, but though it strengthens the case of the sp. pallida enormously, it does not yet clinch the argument. The great desideratum in this respect is that we may be able to grow the organism outside the body, and this up to the present has not been accomplished.

Certain claims have been put forward that the organism has been grown in celloidin capsules, etc., but the evidence is not sufficient. When this is done, and when, with a pure culture we can cause the lesions in animals, as above described, and recover our spirochæte, then the argument will end. Till then we must remember no matter what our hopes and leanings may be, that the Giemsa spirochæte may be some extraneous organism, the silver spirochæte an artifact, that the presence of spirochæte in inoculated animals does not necessarily mean that it is the cause of the lesion, and though we must recognize that the spirochæte pallida has been found in all lesions of syphilis in the internal organs, and in the blood, and by those accustomed to work with it with astonishing frequency and constancy, that it is present in the syphilitic lesions of apes, monkeys, rabbits, etc., that in numbers it corresponds with the virulence of the disease, disappearing as the disease becomes milder, and disappearing with mercury and atoxyl treatment. Though all this is most important and demands our interest and expectation of fuller proof, yet to be truly scientific, we must refuse to go farther, we must remember the fate of the Lustgarten bacillus, which also had a considerable following. Yet the proof seems almost complete.

From one other source can proof, perhaps, come. This is not the place to go into the Bordet and Guigon reaction or fixation of the complement, etc., but inasmuch as the test promises another method of diagnosis of syphilis among other diseases, it is not impossible that its accordance with the presence or absence of the spirochæte pallida will suffice to add another link in the chain of evidence.

That I may put the position of those who have most studied this question clearly before you, let me quote the words of Neisser: "If one collects all these facts, which alone and by themselves are, perhaps, inconclusive, that skilled examiners can almost without exception find spirochæte in the secretions, blood and tissues of both hereditary and acquired syphilis, in man and in apes, their occurrence in ape chancre, the result of blood inoculation, and their absence in non-syphilitic blood inoculation, their constant and characteristic form, then we must admit the probability of the etiological relationship, although the conclusive evidence, the causation of syphilis by pure culture, is still wanting ([18]).

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OPSONINS AND OPSONIC INDEX.

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VOL. XXXVII. MAY, 1908. No. 5.

POST GRADUATE COURSE.

The Medical Faculty of McGill University announces that arrangements have been made for a more extended course of study for graduate students, during the coming summer, than has hitherto been offered.

During the months of June, July and August, the wards, laboratories, theatres, post mortem rooms and outdoor departments of the Montreal General Hospital, the Royal Victoria Hospital and the Montreal Maternity Hospital, will be utilized by the members of the Teaching Staff of the Faculty exclusively for the benefit of graduates desiring clinical and pathological work.

In the Department of Surgery the following is offered in each Hospital: A daily theatre clinic in which the cases for operation will be discussed and opportunity given for a study of Operative Methods and Technique; in the wards a special opportunity is offered for Surgical Diagnosis and the study of Post-Operative Treatment; in the outpatient departments there is abundance of material.

In the Department of Medicine, visits to the wards will be made daily at regular stated hours and the Diagnosis and Treatment of interesting cases will be discussed. Ample opportunity will also be afforded for the personal study of the ward cases. There is also a large outpatient clinic in each hospital daily.

In the Special Branches of Gynæcology, Ophthalmology, Otology and Laryngology, large out-patient clinics will be offered in both hospitals,

in which special opportunity will be given for the examination of the cases presented. In each of these branches there are weekly operative clinics.

There is also abundance of out-patient material in Diseases of the Nervous System, Dermatology, Pediatrics, Orthopœdics and Genito-Urinary Diseases.

In the post mortem room and laboratories of each hospital a large number of post mortem examinations are performed, and much pathological material is systematically examined, an excellent opportunity being thus afforded for studying autopsy methods and examining the pathological material sent from the operating rooms.

In Obstetrics the daily visits of the attending physician to the Hospital will be utilized for the purpose of instruction and any special operations will be made available to the attending graduates.

No fee will be charged for these courses, but graduates who do not possess a perpetual hospital ticket will be required to pay the regular fees of the hospitals for student attendance, viz.: $5.00 for each hospital.

Special Laboratory Courses and Classes in Clinical Subjects may be arranged through the Registrar of the Faculty, and for these classes moderate fees will be charged.

In order to enable the Faculty to conduct this course on a business basis and to restrict the opportunities offered to *bona fide* graduates in medicine, applicants will be required to register their names and addresses, etc., with the Registrar of the Faculty. For this a Registration Fee of $5.00 will be charged, which will entitle the applicant to a ticket admitting him to all the privileges of the course, together with a time-table of the attendance at the different hospitals.

The course will be so arranged that graduates may enter upon it at any time, take up such subjects as they please and leave whenever they desire to do so with disadvantage to themselves.

MEDICAL RECIPROCITY.

The authorities who have had to deal with the question of Medical Reciprocity between the Province of Quebec and Great Britain are to be congratulated upon the successful issue of their endeavours. Reciprocity is an accomplished fact. His Majesty the King in Council has issued an order to apply Part II of the Medical Act (1866) to the Province of Quebec.

We append extracts from the official public document (No. 299) of the British Medical Council, wherein is a detailed report of the pro-

ceeding on the question of Reciprocity up to the point of the issuing of the order by His Majesty the King in Council.

The Clerk of the Council.
Privy Council Office, London, S. W.
December 12th, 1907.

Referring to my letter of the 20th ult. (99,523), and to previous correspondence, on the subject of the proposed application of Part II of the Medical Act, 1886, to the Province of Quebec, I am directed by the Lord President of the Council to transmit to you the accompanying copy of a despatch from the Governor-General of Canada forwarding an amended Resolution adopted by the College of Physicians and Surgeons of Quebec establishing the conditions upon which medical practitioners of the United Kingdom will be allowed to practise in the Province.

The Lord President will be glad to be favoured in due course with the opinion of the General Medical Council upon the Resolution as amended.

I am, Sir,
Your obedient servant,
A. W. FITZROY.

The Registrar,
General Medical Council.

(Copy of despatch.)

Copy No. 465.

Government House, Ottawa,
November 26th, 1907.

My Lord,

In continuation of my despatch No. 260 of the 15th June last, relative to the request of the Province of Quebec to have Part II of the Imperial Medical Act, 1886, made applicable to that Province. I have the honour to enclose herewith copy of an approved Minute of the Privy Council, enclosing copy of the amended resolution adopted by the College of Physicians and Surgeons of Quebec, establishing the conditions upon which medical practitioners of the United Kingdom will be allowed to practise in the Province, which completes the information required by His Majesty's Government.

I have, &c.,
(Sd.) GREY.

The Rt. Hon. the Earl of Elgin.

Sir,

P. C. 1744 M.

Extract from a Report of the Committee of the Privy Council Approved by the Governor-General on November 21st, 1907.

The Committee of the Privy Council have had under consideration a despatch dated November 14th, 1907, from the Lieutenant-Governor of the Province of Quebec, forwarding copies in English and French respectively, of a resolution adopted by the College of Physicians and Surgeons of the said Province, completing the information required by the Home Government in regard to application of the Province of Quebec for the issue of an Order by His Majesty the King in Council for the application of the second part of the Medical Act, 1886, as amended, to the said Province.

The Committee, on the recommendation of the Secretary of State advise that His Excellency be moved to forward a copy hereof and of resolutions attached, to the Rt. Hon. the Secretary of State for the Colonies.

All of which is respectfully submitted for approval.

(Sd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

Hôtel du Gouvernement,
Québec, 14 novembre 1907.

Monsieur,

Référant à votre dépêche No. 1111 du 30 mai 1907, j'ai l'honneur de vous transmettre une copie anglaise et française de la résolution adoptée par le Collège des Médicins et Chirurgiens de la province de Québec, complétant les informations demandées par le bureau colonial, au sujet de la mise en force de l'acte médical impérial dans notre province.

J'ai, &c.,
L. A. JETTÉ,
Lieuttenant Gouverneur.

L'Honorable Secrétaire d'Etat, Ottawa.

College of Physicians and Surgeons of the Province of Quebec.

Extract from the proceedings of the regular meeting held at Quebec on the twenty-fifth day of September, 1907.

Resolved, that Article V. of Chapter IV. of the by-laws of the College of Physicians and Surgeons of the Province of Quebec be repealed and replaced by the following ones:

Those whose names are inscribed in the Medical Register of the United Kingdom of Great Britain and Ireland, pursuant to the Imperial Medical Acts, or to any amendments thereof, shall be entitled upon producing proof of such inscription and establishing that they are of good character, and upon payment of the fee for the time payable on the issue of the license to practise medicine, surgery and obstetrics in the Province, to which a license and to registration thereof without undergoing any examination, provided they establish to the satisfaction of the Provincial Medical Board, either:

1. That four years at least before their inscription in the Medical register of the United Kingdom, they had obtained from the Provincial Medical Board a brevet or certificate of admission to the study of medicine, or

2. That they were inscribed in the Medical Register of the United Kingdom, and became qualified to practise their said profession in that country in the course of a period of not less than five years, during the whole of which they resided out of the Province of Quebec.

This by-law to take effect only when and so long as the same privilege is granted in the United Kingdom to holders of a license or diploma granted by this college, giving right to practise medicine surgery, and obstetrics in this Province.

Resolved that the following proviso added to the Resolution relating to British reciprocity and adopted at the meeting of September last, be by these annulled. "Provided that those who having obtained the British registration will apply for the license of the College of Physicians and Surgeons of the Province of Quebec, have previous to their British Registration, satisfied all the exigencies of our medical law for the obtaining of the license."

(True copy.)

LOUIS P. NORMAND, President.
Secretary of the College of Physicians and Surgeons,
C. R. PAQUIN.

*This communication was acknowledged by the President on December 16th, 1907, with the promise that it should be considered by the Executive Committee at its next meeting, and the expression of a hope that the delay thus caused in forwarding the reply would not occasion any inconvenience.

Resolved: That the President be requested to send to the Lord President of the Privy Council a reply to the following effect:—

The Executive Committee have considered the amended by-laws now in force in the Province of Quebec, establishing the conditions under which medical practitioners registered in this country will be allowed to practise in that Province. The Committee find that in all essential respects these

conditions correspond to those laid down in Section 11 of the Medical Act, 1886, for the admission to the Medical Register of practitioners possessing a recognised colonial diploma, and legally entitled to practise in a British Possession to which the Medical Act applies.

By the enactment of the amended by-laws, and the repeal of a provision which unduly restricted the admission of British practitioners to the Provincial Register the Medical Authorities of the Province of Quebec have, in the opinion of the Committee, provided an equitable basis for the establishment of reciprocal relations with the mother-country in respect of medical registration.

The Committee would therefore welcome the application to Quebec as a separate British possession, of Part II of the Medical Act, 1886, should His Majesty in Council be pleased to issue an order for that purpose.

We are sure the whole medical profession in the Province of Quebec will hail with delight the passing of this legislation, for to them accrue nearly all the benefits concerned therein. Although Reciprocity implies a certain amount of give and take on both sides, still, on thinking over the various phases of the question, we cannot help remarking that nearly all the advantages, and very few of the disadvantages, are on the side of Quebec.

At the very outset it is well nigh a physical impossibility for an equal number of interchanges between the medical professions in Quebec and Great Britain—there is absolutely no room for British practitioners in the Province of Quebec—they positively could not earn a livelihood if they came to settle and practise here, from the conditions appertaining to medical practice in this Province—whereas, on the other hand, there is every inducement for Quebec practitioners to register in Great Britain. Besides opportunities for actual practice in the British Isles, Quebec medical men have now the entrée to all Crown Colonies, the Army and Navy, the Indian Medical Services, and the Mercantile Marine.

At the present day there are many of the younger graduates who, finding the medical profession a little crowded in Canada, and having a leaning towards a life in one of the services, have hitherto been debarred from entering therein, except by the expenditure of a great deal of additional time and money in obtaining a British qualification. Now all this is altered, and we feel sure that some of these younger men will avail themselves of the opportunities thus afforded them and will undoubtedly prove in the future both a credit to themselves and to the medical schools in Quebec.

Again, we have it on very good authority that in those Provinces where reciprocity is established, two commissions in the Army Medical Service will be placed at the disposal of those provinces, and this in addition to the right of all British registered practitioners to compete in the regular Service Examinations. Lastly, besides opening up to graduates such vast fields as India and South Africa, we must not forget

that all other British Colonies, and Italy as well, are partners in the reciprocity scheme, thus requiring only an agreement between Quebec and these other colonies to institute reciprocity in these cases.

HONOUR TO DR. GEIKIE.

As a testimonial of the work of Dr. Walter B. Geikie, formerly dean of Trinity Medical College, in advancing medical education in Ontario and in founding and building up Trinity Medical College, his portrait in oil was unveiled at the Medical School of Toronto University, April 7th, in the presence of a large number of medical men. The picture, which is the work of J. W. L. Foster, was accepted by Dr. Geikie and presented to Toronto Academy of Medicine.

Dr. George A. Bingham made the presentation on behalf of the graduates of Trinity Medical College. In his address he referred to the fifty-one years of service of Dr. Geikie in the teaching of medicine. He started his career in 1856, and from that year to 1860 Dr. Geikie filled two chairs of the medical faculty of Victoria University. His health then broke down and he removed to Aurora. While there he attended to a large practice and came to the city to deliver daily lectures. In 1869 he was appointed to the chair of Anatomy of Victoria University. In 1870, Dr. Ralph, dean of the Medical Faculty of that institution, resigned, and Dr. Geikie left with him, founding Trinity Medical College, in 1871, where he was professor of medicine. In 1877 Dr. Geikie became Dean of Trinity Medical College, and this position he occupied till the amalgamation with the faculty of medicine of Toronto University in 1903. Until 1907 Dr. Geikie was one of the medical examiners of the University.

Dr. Geikie, in accepting the honour conferred upon him, expressed his deep gratification, especially as it represented the warm feelings entertained towards him by the graduates of his old college. Of the fifty-one years spent by him as medical educationist, thirty-two years, from April, 1871, until June, 1903, were specially devoted to the founding, establishing, on as firm a foundation as possible, and the building up of Trinity Medical College with his utmost energy. In those years he ever kept in view and promoted, as far as he could, the best interest of every student who entered its doors. So Dr. Geikie highly appreciated this testimonial of his graduates. It vividly recalled the many pleasant years, periods of continuous delight to him, he enjoyed in meeting his classes daily. With all his heart he thanked every graduate who had a share in the presentation, who was as loyal to his college as he, and who now cherished as sincerely as he its memory.

During 1907 over two hundred papers, lectures and pamphlets were published in Europe and America concerning alcoholism and inebriety from a purely scientific point of view. Many of the authors complain that these papers were practically lost, because they did not reach medical men interested in the subject. The Scientific Federation Bureau organized in Boston two years ago, for the purpose of collecting and disseminating the facts concerning the alcoholic problem, proposes to secure a list of medical men who are interested in the scientific study of the alcoholic problem. The list will be valuable for authors and students, who wish to address a special audience of physicians, not only to increase their interest, but to stimulate more exact studies of the subject. Such a list will enable the Bureau to extend its work of accumulating papers and reprints of all that is written and keep authors and readers familiar with the work that is done. All physicians who are interested in the scientific study of the alcoholic problem and research work, and the studies of medical men at home and abroad, are urged to send their names and addresses to Dr. T. D. Crothers, Hartford, to be registered, and receive copies of papers and abstracts from authors and from others who may wish to have their papers read by interested persons.

We are informed that the medical staff of the Toronto Free Hospital for Consumptives, at Weston, Ontario, are engaged in forming a medical library, and feel sure that many members of the profession would be willing contributors by sending books associated with the good work which is being done in that hospital. If those who are interested in the treatment and prevention of consumption would abandon such high sounding phrases as "crusade against the white plague" in "this Canada of ours," we believe that they would appeal more nearly to men who love moderation in expression.

The annual meeting of the *American Medical Editors' Association* will be held at the Auditorium Hotel, Chicago, on May 30th, and June 1st. An extensive and interesting programme has been prepared and every member of the Association is urged to be present and editors of medical magazines, not now affiliated with this Society, are also invited to meet with them.

Obituary.

REV. PROF. WM. WRIGHT, M.D.

Died, April 15th, 1908, Aet. 81.

There has lately passed from amongst us a man who, at one time, took a leading part in the medical affairs of Montreal, and who was well known to the older men of the profession, but who was a stranger to almost all the younger graduates. His name may, perhaps, have been heard by them occasionally in connexion with the traditions of the Chair of Materia Medica, which he held for so many years in the University, but his memory was a mere name.

Although on the list of consulting physicians to the Montreal General Hospital for twenty-five years, and latterly the senior consultant, but few even of those on the staff of the hospital knew of his existence. Yet he was attending surgeon and physician for thirty years, and formerly did much good work in the hospital, being regarded as a most advanced and excellent teacher. He performed many operations successfully, which, at that time, were considered unusual and hazardous, especially cases of ligature of the great vessels at the root of the neck for aneurysm.

Dr. Wright, during the thirty years he was a professor in the Medical Faculty of McGill University, taught many of the older medical men throughout the country. When in his prime he was a very able lecturer and was much admired for the purity of his diction, the polished elegance of his sentences, and his great fluency. He exhibited a marvellous memory, never in his lectures using any notes. His knowledge of his subject was vast and accurate, and his great attainments won him the respect of the students.

In later years, having retired from practice and entered the Church of England as a clergyman, he failed to keep up with the times, and his lectures, though good of their kind, were not up-to-date, and caused trouble with the students who had to be

REV. PROF. WILLIAM WRIGHT, M.D.

examined on them. This led to his retirement from the college in 1883, and to his being placed on the list of Emeritus Professors.

He began his medical career as a pupil of the late Dr. James Crawford, who was then attached to the staff of the Montreal General Hospital, and was professor of Clinical Medicine in the University. Dr. Wright graduated with the class of 1848; being a few months under the required age of twenty-one, he went abroad for some two years, spending his time chiefly in Dublin, London, Paris and Edinburgh, in which latter place he passed the examination for the L.R.C.S. Returning to Canada, he almost immediately became connected with the Medical Faculty of McGill, first as Demonstrator of Anatomy and Curator of the Museum, and later as professor of Medical Jurisprudence, and in 1854 as professor of Materia Medica and Therapeutics, a position which he held for twenty-nine years. For many years also he was the librarian of the college. He was an attending physician and surgeon to the Montreal General Hospital for thirty-one years, retiring in 1883. For six years (1854-1860) he edited, with the late Dr. D. C. McCallum, the *Medical Chronicle,* and in this journal published many papers, chiefly on therapeutics. About this time he wrote an elaborate article on the treatment of innominate aneurysm, citing a case of his own treated by ligation of the common carotid. The aneurysm tumour solidified and the case was quoted in all the surgeries of that date, and appeared in Erichsen's Surgery as late as 1869.

Professor Wright was the last of the men who for twenty-five years, between 1850 and 1875, did so much to bring up the standard of the Medical Faculty of the University by their teaching in the college and their excellent clinical work in the hospital; men such as Geo. W. Campbell, Wm. Fraser, R. P. Howard, Geo. Fenwick, D. C. McCallum and Robt. Craik—men of wide learning, strong individuality, and great enthusiasm, who impressed themselves on the students they educated. For some years past Professor Wright has led a very retired life, not being in good health, having had a stroke of paralysis some two years ago. The writer has visited him often during these past few years and has been much entertained by the fund

of information he dispensed regarding medical Montreal fifty years ago and the history of the McGill Medical Faculty.

Dr. Wright had a caustic tongue, a pretty wit, and a great command of language, never using a short word when he could use a long one. His disposition was most sensitive and retiring coupled with the strictest sense of humour. He often performed acts of kindness of which but little was known, and he much appreciated any little attentions shown him. He was a widower, having married Miss Margaret Harbeson of Quebec, in 1864, and leaves two sons, both clergymen of the Church of England.

This fragmentary notice may very properly be concluded by a quotation from an address given by him to the students in 1872, on the opening of the then new medical college, in the college grounds, and which can be applied to himself:

"Let your life be as a sun of wisdom shining out upon the world to which your influence extends; let it be unsullied by a cloud of suspicion against your worth and sincerity; and when the crimson of the sunset sky paints the evening, when you shall no more go forth to work, then in the night that follows the bright stars that have treasured up the light of the past will shine forth to welcome you home to the 'mountain of myrrh and the hill of frankincense.'"

F. J. S.

Reviews and Notices of Books.

THE DIAGNOSIS and TREATMENT of PULMONARY TUBERCULOSIS. By FRANCIS M. POTTENGER, A.M., M.D., Medical Director of the Pottenger Sanatorium for diseases of the lungs and throat, Morovia, Cal.; Professor of Clinical Medicine, University of Southern California, etc., etc. New York; William Wood & Company, 1908. Pages 377. Price $3.50 net.

The author goes fully into the subject of early pulmonary tuberculosis, its symptoms, signs, and diagnosis, and emphasises its essential differences from the advanced stage. The former, he says, is the disease, the latter the result of that disease. He lays stress on the importance of a carefully recorded two-hourly temperature chart in doubtful early cases, and is a firm believer in the value of tuberculin, both in diagnosis and treatment, and in its practical freedom from danger when intelligently used. He is convinced that in most cases of pulmonary tuberculosis there is a long latent period following the original infection, which probably takes place in childhood. This apparently latent period, however, is not altogether devoid of symptoms, the significance of which is usually not recognised at the present day. But the author is confident that further study and observation will, in the not distant future, enable the careful physician to diagnose the disease with reasonable certainty at a much earlier stage in its development than is at present possible.

The details of physical examination are carefully gone into. Illustrations are given of a very accurate and convenient form of chart for recording findings. The author urges the examiner to familiarize himself with the several methods of percussion, the auscultatory, direct, and Ebstein's touch percussion, and to make use of them all, in addition to the usual method, in every case; each having its advantages. He gives a new method of his own, a description of which he recently published. It consists in eliciting sounds by striking the chest with short pieces of soft or firm rubber tubing. Amongst the special advantages he claims for it are the following: it does not set the long thorax in vibration, obscuring the lung note, and so the stroke can be made across the ribs just as well as parallel to them; slight differences in density are more clearly manifested by change of tone, especially when the firm rubber is used; and it is of particular value in outlining cavities.

Rather less than half the book is devoted to treatment, which he deals with in a broad, rational, and scientific manner. The rôle of the bone

bacillus in human tuberculosis, and its important bearings on the success of the vaccine treatment, and on prognosis, according to Spengler, the author fully subscribes to. There is a full appendix dealing with the duty of the state, the time and manner of infection, and giving a critical study of tuberculin and allied cultural products.

The author's style is excellent, and the book is well illustrated, of convenient size, and well printed. Altogether, we can thoroughly recommend it, not only as a helpful book of reference, but as affording interesting reading on this ancient, but fortunately to-day most hopeful and important disease.

W. W. F.

International Clinics. Edited by W. T. Longcope, M.D., Philadelphia. Volume I, Eighteenth Series, 1908. Philadelphia and London: J. B. Lippincott Company; Montreal: Charles Roberts.

The current number of "International Clinics" is a volume of over 300 pages, and deals with the whole range of medicine and surgery. The opening article upon the "Sanatorium," by Lawrason Brown, M.D., contains every vice of writing known to the present reviewer. The possession of a degree in medicine does not necessarily qualify a man for authorship, but an editor is expected to remedy the defect. Though the writer makes free use of brackets to prevent his sentences from falling apart, his thought is so involved that only a reader can follow it who has plenty of time at his disposal. One would like to know where the writer found the word "anamnesis," which only a Greek scholar will understand means the patient's account of his sickness as a basis for diagnosis. It is worth quoting a few phrases in illustration of that form of writing, not confined to this article alone, which makes the reading of so many American books an impossibility to a person whose taste is not entirely dulled by the process: "In large buildings the more stories gotten under one roof, the cheaper is the cost,"—"The floor of rooms and halls should be deadened. The open windows render this useless for the walls,"—"It is difficult to provide each room with a veranda without blanketing the rooms below,"—"Separate structures vary greatly in cost of construction, being the cheapest (tents, shacks, lean-tos, chalets, etc.) or the most expensive (elaborate pavilions or cottages),"—"Open fireplaces are valuable spring or fall,"—"The septic tank or sewage disposal beds are probably the best systems,"—"Upholstering (unless leather or removable and washable) is not to be used." The article is written in the jargon of a house surgeon's case book, and it receives mention here not because it is singular, but because it is typical of much which goes to make up "medical literature."

ATLAS and TEXT-BOOK of HUMAN ANATOMY. By Dr. JOHANNES SABOTTA Professor of Anatomy, Wurzburg University. Edited with additions by J. Playfair McMurrich, Vol. III. Vascular System, Lymphatic System, Nervous System, and Sense Organs. 297 Illustrations mostly in colours. W. B. Saunders Company, Philadelphia and London, 1907. $6.00 per volume.

The third volume of this magnificent work from the German keeps well in line with its predecessors. The illustrations are its chief feature and show all structures most plainly. There is no ambiguity and the student and practitioner will learn anatomy with the eye as the panorama of coloured pictures passes by. It is the next best thing to dissecting. The brain is well and even beautifully illustrated as are also the organs of the special senses. With the great advance of modern surgery much more attention is devoted by anatomists to the sympathetic system, and the distribution of glands and lymphatics is well illustrated in this volume, especially those of the axilla and neck. We can heartily recommend this work as an atlas and textbook; as an aid to the pratitioner in recalling his fading knowledge of anatomy it will be invaluable.

A LABORATORY HANDBOOK OF BACTERIOL'OGY. By DR. RUDOLF ABEL, Medical Privy Councillor, Berlin. Translated by DR. M. H. GORDON, M.A., M.D. (Oxon.) B.Sc. London: Henry Frowde, Oxford University Press; and Hodder & Houghton; Toronto: D. T. McAinsh & Co. Price, $1.50.

This book, which has already reached the tenth edition, is a standard laboratory book in Germany, and gives a complete account of every important technical detail employed in the bacteriological laboratory. The translator has added an account of those methods which have proved of value in the examination of the air. A special article has been written by Dr. Houston of the Metropolitan Water Board, on the examination of water for sewage contamination. An article has been written by Dr. Horder on the examination of organs, and an account of present methods with regard to opsonins is included. The success of the book is assured by the great pains the author has taken and the attention he has given to every practical detail. The book appears in the Oxford Medical Publication Series, a comparatively recent venture by the famous Oxford Press.

A TEXT-BOOK of PRACTICAL GYNECOLOGY. By D. TOD. GILLIAM, M.D., Second Edition. F. A. Davis & Co., Publishers.

The first edition of Dr. Gilliam's book was published only four years ago and the call for a second one so soon shows that it was appreciated

by those for whom it was intended. The present edition is a complete revision of the former one and has been brought thoroughly up to date, additions to the reading matter and illustrations having been made.

One feature which will serve to recommend it to students in particular is a regional index of symptoms, showing the diseases to be especially watched for when any one symptom is present.

The book is well written and the illustrations are both numerous and clear. The teaching is sound but, in a book published especially for the use of students, it is a pity, that, in describing the operations for cancer of the uterus, Werder's method is not more fully explained and in ordinary vaginal hysterectomy for the same disease no mention is made of the necessity of scraping away all of the diseased tissue and closing the cervix before proceeding with the removal of the organ. It is hoped that these deficiencies will be remedied in the third edition which will doubtless soon be called for.

F. A. L. L.

CONFESSIO MEDICI. By The Author of "The Young People." The Macmillan Company of Canada, Toronto.

"When I meet a long Latin word in a line of quiet English, I stop it and ask to see its root;—a mere animal noise, the cry of an ape courting an ape;—at a time when most medical practice was still strutting or shambling along the old paths;—they wear on their foreheads, like a phylactery, the University arms;—too busy to be interested in their accomplishments;—the *genius loci* of the hospital garden;—accounted for nature by magnifying her belongings;—provisional beginning of learning;—everything is just as easy to Nature as everything else, she prices her goods all at the same value, all her processes are one process, all her facts are one fact;—the random talk which calls itself psychology;—the world will no more ask the advice of psychology in matters of conduct than it would ask the gentlemen at Greenwich to stop the next earthquake;—the chief use of psychology is to satisfy the examiners in psychology;—substituted one set of illusions for another;—Juvenal's prayer;—found no rapture in the contemplation of the country, nor in the destruction of the lower forms of life;—reckons his losses amongst his accomplishments."

When one comes casually upon such phrases as these in a book which bears no author's name, he is impelled to seize upon it and drag it to his secret place and consider further of the matter. The very title, "Confessio Medici," allures one, especially when it is set forth upon a book so correctly printed and so comfortable to the eye and hand. The information about the book is nothing more than that it is printed by

Maclehose, of Glasgow, who never by any chance seems called upon to print a bad book; that it is published by Macmillan and Co.; that it is forwarded by the Macmillan Company of Canada, and is written by the author of "The Young People." One must respect the reticence of an author; and yet one cannot refrain from wondering what manner of man wrote this book; for, written it is by a man, and not pieced together by a machine with random words out of a dictionary. An author cannot conceal himself entirely, since, as Walter Bagehot said of Shakespeare, a writer does not keep a machine to do his work. Therefore, one need not be a sorcerer to discover that the writer is a surgeon more than a physician, a consultant rather than an operator, a graduate of Oxford[see page 13], probably from Christ's; and, as all Christs' men go to St. Bartholomew's Hospital, probably a "Bart's man." Certainly, the description of the *genius loci* fits in well with the garden of that ancient foundation. Finally, the unconfessed author appears to be as wise as Solomon would be if he were yet alive, and as gracious as that other Preacher who gave his heart to search out by wisdom all things that are done under heaven, and wrote a book which by a perversion of exegesis has been accounted of the saddest, instead of the most amiable and amusing. The "Confessio Medicio" shall also be a secret for the present. The elect will search it out for themselves and obtain relief from the reading of books with shiny pages and loathsome pictures. It is a book of gravity, reticence, and authority, as the writer himself says of Prudens.

A. M.

A Manual of the Diseases of Infants and Children. By John Ruhrah, M.D., Baltimore. Second Edition. Philadelphia and London: W. B. Saunders Company, 1908; J. A. Carveth & Co., Toronto. Price, $2.00 *net.*

This is a book of 400 pages, comfortable to the hand and eye, and contains an amazing amount of information well selected and well set forth. Every word is weighed and every paragraph measured. It would be hard to suggest a better book for students or one which will serve better in practice.

Nervous and Mental Diseases; for Students and Practitioners. By Charles S. Potts, M.D. Second Edition, revised and enlarged. Illustrated with 133 engravings and 9 plates, 570 pages. Published by Lea and Febiger, Philadelphia and New York, 1908.

In this, the second edition, the author has incorporated most of the important advances that have been made in the study of diseases of the

nervous system since the first edition appeared. While in a book of this size it is obviously impossible to treat the various subjects exhaustively, still one is struck with how much there really is. The book is concisely written with no unnecessary "padding." The text is large and clear, and the illustrations good.

The section on Mental Diseases is, perhaps, a little too short. However, throughout the book reference is made to various authorities where the subjects can be found more exhaustively dealt with.

C. K. R.

Medical News.

ONTARIO MEDICAL ASSOCIATION PROGRAMME.

The twenty-eighth annual meeting of the Ontario Medical Association will be held in Hamilton, from May 26th to May 28th. The following is the programme:—

TUESDAY MORNING, MAY 26TH.—*Medical Section,* 10*a.m.*—(1) Vaccine Therapy in Medicine and Surgery, W. L. Silcox, Hamilton. (2) One Year's Experience with the Therapeutic Inoculation of Bacterial Vaccines of the Toronto General Hospital, George W. Ross, Toronto. (3) The Opsonic Treatment of the Diseases of the Skin, D. King Smith, Toronto; discussion on bacterial vaccines to be led by W. Gibson, Kingston. (4) Neurasthenia from the Ætiological Standpoint, H. B. Anderson, Toronto; discussion to be led by J. A. Bauer, Hamilton. (5) Rare Complications of Pregnancy, with report of a case, A Dalton Smith, Mitchell; discussion to be led by G. S. Glassco, Hamilton.

Surgical Section, 10*a.m.*—(1) Conservative Surgery of the Tubes, with report of five cases, L. W. Cockburn, Hamilton; discussion to be led by T. Shaw Webster and S. M. Hay, Toronto. (2) Method of Treatment of Sprained Ankle, J. Sheahan, St. Catharines; discussion to be led by F. N. G. Starr, Toronto, and T. H. Balfe, Hamilton. (3) Obstruction due to Cancer of the Large Bowel, H. A. Bruce, Toronto; discussion to be led by W. Gunn, Clinton, and Henry Howitt, Guelph. (4) The Surgical Treatment of Compression Paraplegias, A. Primrose, Toronto; discussion to be led by A. B. Welford, Woodstock, and L. W. Cockburn, Hamilton.

Section of Preventive Medicine, 10 *a.m.*—(1) Diphtheria Antitoxins as Prophylactic and Curative Agents, W. Goldie, Toronto.. (2) Medical Inspection of Schools, Helen MacMurchy, Toronto. (3) Control of Minor Contagious Diseases, H. Sinclair, Walkerton. (4) Precautionary

Measures Necessary to Prevent Infection in Typhoid Fever Patients, J. A. Amyot, Toronto. (5) Sewage System for Towns and Smaller Cities, T. Aird Murray, C.E., late of Leeds, England. (6) Anti-Variolous Vaccines, Charles A. Hodgetts, Toronto.

Tuesday, Noon.—Clinic and luncheon at the City Hospital.

Tuesday Afternoon.—*General Session*, 2.30 *p.m.*—(1) President's Address. (2) Ballot for the Committee on Nominations, and appointment of scrutineers. (3) Symposium—Arterio Sclerosis: (*a*) Pathology, J. J. Mackenzie, Toronto; (*b*) Cerebral Manifestations, Colin K. Russell, Montreal; (*c*) Ocular Manifestations, Hermon Sanderson, Detroit; (*d*) Aortic Arch Manifestations, Thomas McCrae, Baltimore; (*e*) Muscle Manifestations, Harry C. Buswell, Buffalo; (*f*) Visceral Manifestations, J. A. Bauer, Hamilton; (*g*) Treatment, A. McPhedran, Toronto. (4) Report of scrutineers.

Meetings of Committees, Standing, Temporal, and Special.

Tuesday Evening.—Smoking Concert at the Yacht Club, Hamilton Beach. The Committee on Arrangements are providing an entertaining programme.

Wednesday Morning, May 27th.—*Medical Section*, 9.30 *a.m.*—(1) Remarks on the Duties of Medical Examiners in Life Insurance, G. S. Glassco, Hamilton. (2) Remarks on the Fees for Life Insurance, Norman Walker, Niagara Falls; discussion on life insurance to be led by W. H. Merritt, of St. Catharines, J. H. Howell, of Welland, E. M. Hooper, of St. Catharines, and T. F. McMahon, of Toronto. (3) Non-Alcoholic Cirrhosis of the Liver, R. J. Dwyer, Toronto. (4) Some Points in the Treatment of Puerperal Septicæmia, A. H. Wright, Toronto; discussion to be led by H. S. Griffin, Hamilton. (5) Addison's Disease and Adrenal Insufficiency, Benson Cohoe, Baltimore. (6) The Estimation of the Pressure of the Cerebro-Spinal Fluid, R. D. Rudolf, Toronto. (7) The Medical Superintendent, Charles O'Reilly, Toronto.

Surgical Section, 9.30 *a.m.*—(1) Exstrophy of the Bladder, report of a case, F. N. G. Starr, Toronto. (2) Report of an extraordinary case of foreign body in the bladder, Edwin Seaborn, London; discussion to be led by E. B. O'Reilly, Hamilton, George E. Armstrong and A. E. Garrow, Montreal. (3) The Hyperæmic Treatment, H. P. Lyle, New York City; discussion to be led by V. P. Gibney, New York, S. H. Westman, Toronto, and E. B. O'Reilly, Hamilton. (4) Ulcer of the Stomach, W. E. Olmsted, Niagara Falls. (5) Duodenal Ulcer, A. E. Garrow, Montreal; discussion to be led by J. W. Edgar, Hamilton, G. A. Bingham, Toronto, and Robert Lucy, Guelph. (6) Mechanical Ileus, Operation, Recovery—Remarks on the Diagnosis and Treatment,

George T. McKeough, Chatham; discussion to be led by P. Stuart, Guelph, H. P. Lyle, New York, and A. E. Garrow, Montreal. (7) The Surgical Aspect of Hæmophilia with special reference to Hæmarthrosis, Beverley Milner, Toronto; discussion to be led by V. P. Gibney, New York, Clarence Starr, Toronto, and George E. Armstrong, Montreal.

Section for the Eye, Ear, Nose and Throat, 9.30 *a.m.*—(1) Lateral Sinus Suppuration and Cerebellar Abscess, J. P. Morton, Hamilton. (2) Tubercular Uveitis, J. W. Stirling, Montreal. (3) Glaucoma, R. A. Reeve, Toronto. (4) Clinical Measurement of Relative Accommodation, Lucien Howe, Buffalo. (5) Accessory Sinus Disease, Perry Goldsmith, Toronto.

Wednesday Afternoon.—*General Session,* 2.30 *p.m.*—(1) Address in Surgery, Charles L. Scudder, Boston. (2) Gangrene and Abscess of the Lung, George and E. Armstrong, Montreal. (3) Results of the Bier-Klapp Treatment of Tuberculous Sinuses and Joints at the Hospital for the Ruptured and Crippled, New York City, Virgil P. Gigney, New York, and C. E. Preston, Ottawa.

Business Session.—Reports of committees, election of officers, etc., 4.30 p.m.

Wednesday Evening.—The annual dinner to be given in the Royal Hotel, at which the members will be the guests of the medical men of Hamilton.

Thursday Morning, May 28th.—*Medical Section,* 9.30 *a.m.*—(1) Mouth Breathing, John Hunter, Toronto. (2) Report of a Case of Cerebro-Spinal Meningitis, Recovery, A. R. Gordon and Alan W. Caulfield, Toronto; discussion to be led by G. S. Glassco, Hamilton (3) A Plea for Rational Therapeutics, George Acheson, Galt; discussion to be led by V. E. Henderson, Toronto. (4) The Treatment of Appendicitis, G. R. Cruickshank, Windsor; discussion to be led by G. D. Farmer, Ancaster, D. H. Arnott, London, and H. A. Bruce, Toronto. (5) Some Points in the Diagnosis and Treatment of Diabetes Mellitus, Campbell Howard, Montreal; discussion to be led by Graham Chambers, Toronto. (6) Rheumatism, J. C. Meakins, New York; discussion to be led by J. T. Fotheringham, Toronto, and R. Y. Parry.

Surgical Section, 9.30 *a.m.*—(1) Pyelonephrosis and Pregnancy, J. F. W. Ross, Toronto; discussion to be led by Henry Howitt, Guelph. (2) Transplantation of the Omentum in Hepatic Cirrhosis, Edmund E. King, Toronto; discussion to be led by T. H. Balfe, Hamilton. (3) Pancreatic Cyst, D. E. Mundell, Kingston; discussion to be led by George E. Armstrong, Montreal, and Clarence Starr, Toronto; (4) Hypodermic Anæsthesia, D. Dunton, Paris. (5) Spinal Analgesia—His-

tory, Technique, Phenomena, Results, Duncan Anderson, Toronto; discussion to be led by G. A. Bingham, F. W. Marlow, and Samuel Johnston, Toronto, and A. H. Perfect, West Toronto. (6) The Third Dimension in the Visualization of Surgical Procedures, N. A. Powell, Toronto. (7) The Treatment of Acute Diffuse Suppurative Peritonitis without Drainage, C. F. Moore, Toronto; discussion to be led by G. A. Bingham, Toronto, W. E. Anglin, Kingston, and Angus McKinnon, Guelph.

Section of Obstetrics and Diseases of Children, 9.30 *a.m.*—(1) A Fatal Form of Eclampsia, K. C. McIlwraith, Toronto; discussion to be led by J. D. Balfour, London . (2) Obstetrical Technique, Frederick Fenton, Toronto. (3) Some Complications of the Puerperium, report of a case, J. R. Stanley, St. Mary'. (4) Missed Abortion, R. Ferguson, London. (5) Mole Pregnancy, with specimen, C. R. Charteris, Chatham. (6) A Case of Spasmodic Stenosis of the Pylorus in an Infant, with recovery, H. T. Machell, Toronto. (7) Pyo-pneumo-thorax due to a Fusiform Bacillus, Allen Baines, Toronto.

Thursday Afternoon.—*General Session,* 2.30 *p.m.*—(1) Address in Medicine, Charles L. Stockton, Buffalo. (2) X-Ray Diagnosis in Medicine and Surgery, with lantern slide demonstration, Lewis G. Cole, New York. (3) Psychiatry in Relation to General Medicine, C. K. Clarke, Toronto.

MEETING OF THE ASSOCIATION OF AMERICAN TEACHERS OF THE DISEASES OF CHILDREN.

The Association of American Teachers of the Diseases of Children will hold its annual meeting in Chicago at the Great Northern Hotel, corner of Jackson Boulevard and Dearborn, on June 1st.

Requirements for membership in this Association are somewhat unique. To be eligible one must be a regular physician resident in the United States, Canada or Mexico, who is in good professional standing and membership in his country or local medical society and actively engaged as Professor or Associate Professor or Clinical Professor of Pediatrics, or as adjunct to such a chair, or who holds the position of Lecturer on this branch or an equivalent position in a recognized hospital or dispensary staff actively engaged in the treatment of children. All such are invited to join the Association; and all physicians and surgeons interested in children are invited to attend the meeting. Its objects are the study, the teaching and the practice of pediatrics.

The officers of the Association are as follows:

President, Samuel W. Kelley, M.D., Professor of Diseases of Children in Cleveland College of Physicians and Surgeons, Medical Department of Ohio Wesleyan University.

Vice-President, Chas. Douglas, M.D., Professor of Diseases of Children in Detroit College of Medicine.

Secretary, John C. Cook, M.D., Professor of Diseases of Children in Post-Graduate Medical School and Hospital of Chicago (deceased).

Secretary Pro Tem., Robert A. Black, M.D., Chicago.

Treasurer, George G. Cattermole, M.D., Professor of Diseases of Children in Colorado School of Medicine.

Senators W. C. Hollopeter, M.D., Professor of Diseases of Children in Medico-Chirurgical College of Philadelphia; H. M. McClanahan, M.D. Professor of Diseases of Children Medical Department of the University of Nebraska, Omaha; F. R. Gilbert, M.D., Professor of Diseases of Children Kentucky Medical College, Louisville, Ky.

The program for the Chicago meeting is not completed, but in part it is here presented.

Address of Welcome: Arthur D. Bevan, M.D., Prof. of Surgery Med. Dept. Univ. of Chicago, Chairman Council on Education A. M. A.

Address of the President, Samuel W. Kelley, M.D., Prof. Dis. of Children, Cleveland College of Physicians and Surgeons Med. Dept. Ohio Wesleyan University, Cleveland, Ohio.

"The Teaching of Pediatrics as Seen by an Inspector of Medical Colleges," Frederick C. Zapffe, M.D., Secy. American Medical College Ass'n, Chicago, Ill.

"The Fallacy of Attempting to Teach Pediatrics in the Chair of Practice," John A. Witherspoon, M.D., Prof. Practice of Medicine, Vanderbilt University, Nashville, Tenn.

"The Teaching of Pediatrics in the European Schools," H. E. McClanahan, M.D., Prof. of Pediatrics, Univ. of Medicine, Omaha, Neb.

"The Teaching of Pediatrics in The Medico-Chirurgical College of Philadelphia," W. C. Hollopeter, M.D., Prof. Pediatrics Medico-Chirurgical College, Philadelphia, Pa.

"The Doctrine of Difficult Dentition," Theodore J. Elterich, M.D., Diseases of Children, Western Univ. of Penna., Med. Dept., Pittsburg, Pa.

"Anatomical Peculiarities of Infants and Children," Richard B. Gilbert, M.D., Prof. Diseases of Children, Louisville Univ., Louisville, Ky.

"Uncinariasis in the Southern States," J. Ross Snyder, M.D., Birmingham, Ala.

Paper, Wm. W. Butterworth, M.D., Associate Prof. Dis. of Children, Tulane Univ. New Orleans.

"Some Points on Infants' Clothing,"* Alfred C. Cotton, M.D., Prof. Diseases of Children Rush Med. College, Chicago.

Paper, Robert A. Black, M.D., Chicago, Ill.

Paper, Wm. J. Butler, M.D., Chicago, Ill.

Papej J. W. Van Derslice, M.D., Chicago, Ill.

CANADIAN MEDICAL ASSOCIATION.

At the forty-first annual meeting of the Canadian Medical Association to be held this year in Ottawa, on the 9th, 10th and 11th of June, it has been decided to have the following sections: General Medicine; General Surgery; and one session each all going on at the same time, for these: Mental Diseases; Eye, Ear, Nose and Throat; Public Health; Obstetrics and Gynecology; Pathology; Military Surgery. Dr. J. T. Fotheringham, Toronto, and Dr. A. J. Mackenzie, Toronto, are respectively, Chairman and Secretary of this Section; In General Surgery, Dr. Geo. E. Armstrong and Dr. E. W. Archibald, Montreal; In Mental Diseases, Drs. W. H. Hattie, Halifax, and J. C. Mitchell, Brockville; In Public Health, Drs. Chas. A. Hodgetts, Toronto, and Law, Ottawa; Chairman of Obstetrics and Gynecology, Dr. F. A. Lockhart, Montreal; Eye, Ear, Nose and Throat, Drs. Birkett and McKee; Pathology, Dr. W. T. Connell, Kingston; Military Surgery, Dr. G. Stirling Ryerson, Toronto, and Dr. Leggett, Ottawa. The Address in Medicine will be delivered by Dr. Risien Russell, London, England.

The place of meeting will be in St. George's Church, Parish Hall, Metcalfe Street, and the Racquet Court just opposite for Exhibits and Registration; also the Carnegie Library close by for any sectional meetings necessary.

Railway arrangements are completed for all points east of Fort William, in the territory of the Eastern Canadian Passenger Association; and the Standard Certificates plan will prevail. As to Manitoba and west thereof including British Columbia, the General Secretary is in constant communication with the proper people on the subject and hopes to be able to give a definite announcement by May 1st. As early as possible the official circular will be sent out with full information and provisional programme.

The ninth annual meeting of the British Columbia Medical Association will be held in Vancouver on the 20th and 21st of August. A number of papers have been promised, and some interesting discussions

are expected, especially on the question of school hygïene. The officers of the society are:—President, Dr. I. M. Parson, Vancouver; Vice-President, Dr. D. Corsan, Fernie; Secretary, Dr. R. Eden Walker, New Westminster; Treasurer, Dr. J. D. Helmcken, Victoria.

Dr. J. Harris Scammel, of St. John, N.B., died, after a brief illness, from pneumonia, on April 25th. Dr. Scammel was a graduate of McGill in 1894, and had succeeded in building up a large practice in St. John. At the time of his death he was quarantine officer and much respected for his good qualities. He is survived by a widow and family.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

HALSTED AND EVANS. "The Preservation of the Parathyroid Glands in Operations on the Thyroid." *Ann. of Surgery,* Oct., 1907.

The parathyroid glands, as is well known, are usually two in number; they are situated in or just behind the posterior capsule of the thyroid and very close to the trachea. At times they may be imbedded in the substance of the thyroid. From their close relation in position and their somewhat similar histology, these two glands have long been thought to have a similar function, but since Gleys' experimental work this view has been set aside by almost all observers. The fact that they are developmentally distinct lends strong support to Gleys' views. Each parathyroid has its own small artery, which comes from the superior and inferior thyroid respectively, or from an anastomotic branch joining these two. The blood supply to the connective tissue around the parathyroids is so poor that one could hardly imagine it replacing a destroyed parathyroid artery. All surgeons are now agreed that complete destruction of the thyroids will cause a fatally-ending tetany, and injury of these to a slighter degree will cause a corresponding degree of tetany.

We have now learned that in the majority of cases of injury of the parathyroids the trouble comes from interference with the blood supply of these glands and not from their removal.

There have been cases, where, with complete excision of the thyroid, all four arteries of the thyroid have been ligated and yet the tetany has not supervened. This can only be explained by the immediate

establishment of a collateral circulation. Mayo's sub-capsular method of thyroidectomy will save both the glands and their blood supply, but it requires the greatest care in its performance. Ultra-ligation in cases of thyroidectomy for Graves' disease is also very necessary.

C. H. Mayo. "Treatment of the Posterior Capsule of the Thyroid Gland." *Tr. A. S. Ass.,* 1907.

The chief interest is the means to save from injury or removal the parathyroids. He states that there are usually two of these on each side. The superior one is at the side of the larynx close to the œsophagus and superior thyroid artery, and the inferior one close to the inferior thyroid artery. He states that tetany is caused by loss of or injury to these. They can usually be recognized, but both their number and position varies greatly. In removing goitres, he prefers, as a rule, general anæsthesia. In diffuse adenomata he differs from Mikulicz who, in such cases, advises removal of portions of the gland on both sides, and advises removal of one lobe as in hyperthyroidism, but with preservation of the posterior capsule. Mayo had only one case of tetany in 375 goitre operations. In the discussion, Halsted stated that tetany comes oftener from interference with the blood supply of the part than from the removal of the parathyroid gland.

Aneurysm.

R. Matas gives further experiences with the radical healing of aneurysm by his method of operation. He gives twenty-one cases of his own and twenty-seven other cases, and shows that the results are almost always good in spite of the fact that there has often been infection of the wound area. Where the entrance and outlet of the aneurysm is not in the same line, he places a soft rubber catheter between the two ends and sutures on this, removing it before the last sutures. If the collateral circulation has been disturbed one does not have good results. Fine needles and silk, as in Carrel's end to end arterial suture, are the most favourable material.

von Dercum. "Thyroid Metastases in the Spine." *Jour. of Nerv. and Men. Diseases,* Mar., 1906.

von Dercum describes a case where a colloid struma was removed from a fifty-six year old woman. Histologically there was not the slightest trace of malignancy, but one year later the patient commenced to have symptoms pointing to a pressure paralysis of the spinal cord. Six years after the first operation, the case came to autopsy, and seven tumours in the ribs and spinal column were found. Sections of all

of these showed tissue histologically similar to that of a normal thyroid. There was in no place any histological evidence of malignancy in these secondary growths. He cites seven other similar cases.

Watts. "The Suture of Blood Vessels." *J. H. Hosp. Reports.*

Watts points out that Hallowell, in 1759, sutured a small lateral wound in the brachial artery successfully for the first time by means of a transfixing pin. Then Schede, in 1882, successfully sutured lateral wounds of the vein walls. Numerous experiments in the suture of lateral wounds of arteries were then carried out, those of Dorfler, in 1899, being especially valuable; he had especially good results in using fine silk sutures that included all the coats. The next step was the circular suture of arteries, or, in other words, the suture of arteries completely divided. Abbé attempted this by tying the arteries over a tube of thin glass, but was not successful. Murphy attempted the same by invaginating the proximal end into the distal but without success. Gluck excised a small section of the artery and slipped it over one end of the divided artery, then sutured the two ends of the arteries by interrupted sutures; he then replaced the excised cuff over the suture line to strengthen it, but this proved a too difficult procedure. Payr united the ends over a prothesis of magnesium, which he hoped would be absorbed before thrombus formation, a wish which the results did not justify. Carrel, in 1902, brought forward a method of circular sutures of arteries which has remained the one method that has given fairly good results. This consists in approximating the ends of the arteries by three stay sutures and completing by continuous silk suture applied with the finest of needles. The suture usually includes the intima. Anastomosis between arteries and veins can be done by this method, and in cases of arterio-sclerotic gangrene of the foot an attempt to switch the arterial blood into the vein has been tried, but without success. Crile has used this method to bring about transfusion of blood with good success.

Halsted. "Carcinoma of the Breast." *Tr. A. S. Ass.*, 1907.

Halsted states that 23.4 per cent. of his cases, where the axilla was apparently free, died from metastases. He does not think that any case where the cervical glands were involved has ever been cured. Halsted agrees with Handley, that cancer always spreads by lymphatics or by continuous growth along planes of fascia, and that when cancer cells enter the blood stream, they always excite thrombus formation which later destroys these cancer cells. He thinks cancer cysts the most frequently overlooked form of cancer, as the contents may be clear fluid

and even the wall may be almost smooth. If the nature is not recognized at the first operation, the case invariably ends fatally, as the metastases are early and widespread. In the early diagnosis of carcinoma he lays great stress on the limitation of the movement of the breast under the skin. He thinks that all operations of an incomplete nature for cancer should be made with the actual cautery, as then local metastases are less likely to develop. He refers to the fact that one occasionally gets cancerous axillary glands without a demonstrable cancer in the breast.

FINSTERER. "Sarcoma of the Female Breast." *D. Z. f. K. C.*, Jan., 1907.

Finsterer refers to the relative rarity of sarcoma of the breast, and refers especially to the so-called cysto-sarcoma of the breast. This latter form, may be roughly described as epithelial-lined cysts lying in a very sarcomatous-like stroma. Mueller described this form first under the term Cysto-sarcoma phylloides. Virchow counted these as sarcomata and stated that the cysts were due to the dilatation of the already present ducts and acini. Billroth gives these tumours a special place and states that they rarely give rise to metastases. Schimmelbusch counts them as fibro-adenomata and states that they represent a more advanced stage and that they are in no way related to the sarcomata. Schmidt and Gabele consider them sarcomata. Out of the author's eighteen such cases, only one gave metastases, and in this case no details are given. There were several recurrences or newly developed tumours. However, in these as in all other sarcomata the author advises as radical an operation as with carcinoma.

OEHLER. "Experiences with 1,000 Cases of Spinal Anæsthesia." *Beit. z. Kl. Ch.*, Bd. 55, 1907.

Oehler first emphasizes the fact that it is Bier we have to thank for this discovery. He states that their injections are made between the third and fourth, or second and third lumbar spines, and they endeavour to replace an amount equal to the fluid that escapes. He states that occasionally, owing to change in form of bones, or to excessive fat, one is unable to enter the spinal canal. He states that the anæsthesia usually comes on three to five minutes after the injection. The upper limit of the anæsthetized area varies, and he thinks by raising the pelvis one can increase the height. He states that nausea and vomiting are occasionally seen, due partly to the injection and partly to the operation. He has used the method on patients as young as seven and as old as eighty years. He has used stovain, novokain, alypin, and tropococain.

Of all these he prefers the last. He uses 1 to 1½ cm. of 5 per cent. freshly made and sterilized solution to which has been added one drop of the ordinary adrenalin solution to the cc. The persistence of the anæsthesia varies from one-half to five hours, but on an average about three-quarters of an hour. Pain, nausea and vomiting are the late bad results. One is never sure of anæsthetizing the parietal peritoneum. Septic processes are a distinct contra-indication.

KUSTER. "Spinal Anæsthesia." *Tr. A. S. Ass.*, V. 25, 1907.

Kuster first refers to the fact that cocain can not be used, as with sterilization it usually becomes decomposed. Stovain had a fatal action in a case reported by Fritz Konig. Kuster states that the only suitable drug is novocain which is mixed with a minute quantity of suprarenin. He states he has used it for operations as high as the umbilicus. He injects the solution, when possible, with the patient sitting up and bent forward. He endorses the fact pointed out by Ryall of London, that if 15 cc. of spinal fluid are first withdrawn the patient will probably escape the usually severe headache. He uses 2 cc. for the low operations and 3 cc. for the high. The head obstruction, as demonstrated by Donitz, can increase slightly the upper level of the anæsthesia. Five to ten minutes usually is sufficient for the anæsthesia to be complete. Headache follows in about 14 per cent. of cases, but this is relieved by withdrawing 10 cc. of spinal fluid. He combats the statement of the Breslau clinic that pneumonia is as frequent after spinal as after general anæsthesia. He refers to the statement that spinal anæsthesia might cause late degeneration of the spinal cord.

C. B. K.

MEDICINE.

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON, AND HOWARD.

THE OPHTHALMO-REACTION IN THE DIAGNOSIS OF TUBERCULOSIS.

The Muenchener Med. Woch. devotes several papers to the consideration of this subject. Although there are occasional exceptions and contradictory results, the test promises to be of considerable value in the diagnosis of active tubercular lesions.

The test is performed by instilling a drop of ½ to 1, or even 2 or 3 per cent. of a watery solution in the conjunctiva. Calmeth recommends a solution free from glycerine which he regards as a possible irritant, an assomption which has since been shown to be erroneous. If kept in a cool dark place the solution remains good for four to six days.

The first change in the eye is a dilatation of the pupil, taking place in 1¼ to 1½ hours. The dilatation may be extreme and the light reflex may be lost. Whether the pupillary change is more marked in severer reactions is yet undecided. The reaction itself appears in 3-4 hours or sometimes later 15 to 24 hours, and these late reactions may be very intense. As a rule, if the patient can only be seen once a period of 15 to 20 hours should be chosen. Letulle distinguishes three grades of the reaction. In the slightest the caruncle is swollen and reddened and the conjunctiva only slightly reddened; in the second form there is marked reddening of the caruncle and conjunctiva with lachrymation, whilst in the most severe form in addition to marked reddening there is purulent secretion, and sometimes œdema of the lids, ecchymosis and intolerance of light.

Cases also occur in which the result remain in doubt, particularly when the conjunctiva is vascular as in old people in febrile states.

In adults when local changes in the eyes are present the test cannot be employed, as the result may then remain in doubt.

Hypersensitiveness of the conjunctiva is induced by the use of tuberculin, so that a arger proportion of cases react to a second test, and by repeated doses a positive reaction may occur even in non-tubercular individuals. This local hypersensitiveness may persist for several weeks and the reaction is more severe and appears earlier in proportion to the number of instilations. It is particularly severe when the first test is positive. The reaction, if negative at the first trial, appears more readily in tubercular than non-tubercular cases, in whom 3 or 4 repetitions of the test are necessary to obtain a reaction. A sharp line, however, cannot be drawn between the two classes, and repeated tests cannot be used as a diagnostic aid. Experience in children shows that the quantity used plays a part in the reaction and a weaker solution ½ per cent. should be employed. Concentrated solution 2-3 per cent. and a large drop of 1 per cent. solution may even produce reaction in non-tubercular, a result corresponding to experiences in animals. It is thus necessary to avoid concentrated solutions, a large quantities or repeated observations in the same eye to obtain reliable results.

The local changes are more marked when the test is repeated after a subcutaneous inoculation of tuberculin, and the reaction is more marked after a previous subcutaneous injection, and may appear in non-tubercular individuals even when weeks elapsed between the subcutaneous and ocular tests. The occurrence of the reaction has been noted by Calmeth in non-tubercular animals after the use of tubercular.

Blum and Schlippe found a reaction in 13 per cent. of non-tubercular or doubtful cases, in 60 per cent. of very suspicious cases, and in 80 per

cent. of cases certainly tubercular. In severe and rapidly advancing cases the test may fail. Thus in a caseous pneumonia of three weeks duration it was negative. In another severe case a very slight reaction was present two months before death, and absent eight days before the fatal event. The absence of reaction in severe cases corresponds with the results of animal experiments. Schröder and Kauffmann, however, found a positive reaction in severe and unfavorable cases, although advanced hectic cases react only slightly if at all.

Blum and Schlippe found an absence of reaction in some very chronic cases and on the other hand noted its presence in tuberculous meningitis (2 cases) 24 and 48 hours before death. In two cases of tuberculous pleurisy it was absent. 219 patients in whom tuberculosis was absent or improbable showed a positive result in 31. Of the total number 43 had febrile disorders in which 2 or 9 cases of scarlatina and 2 of 8 pneumonias reacted.

In typhoid, Krauss, Lusenberger, and Kress found a positive reaction in 11 of 12 cases, and conversely a reaction occurred in tubercular cases to typhoid toxin. They concluded that the reaction was not specific, but the expression of sensitiveness to toxins in general. Of eighteen cases of typhoid tested by Blum and Schlippe one of nine only showed a reaction during the fever and the 3 of 9 in the febrile period. Bourget also records positive reactions in a case of hemiplegia and of acute peritonites without tubercular lesions at autopsy, whilst Massary and Weilan found a reaction in a general carcinomatosis. Blum noted a positive reaction in three cases of pernicious anæmia and in two cases of apoplexy.

Schröder and Kauffmann have collected the cases hitherto published in the literature and find 11.5 per cent. of tuberculosis cases do not react to the tests, some of these being of a severe character. In suspicious cases of tuberculosis a negative result was found in 48.6 per cent., and in non-tuberculosis cases 87.3 failed to react.

In the non-tubercular cases 8 of 12 cases of typhoid were positive, a fact which Cohn regards as due to hypersensitiveness to bacterial albumen in general.

Compared with the subcutaneous injection of tuberculin, the ophthalmic reaction is decidedly less certain. Fraenkel and Beck found that suspicious cases reacted in 85 to 92 per cent., which only 48.6 per cent. of such cases reach to the ophthalmic tests, and the positively tuberculous cases always reacted.

W. F. H.

ORTHOPAEDICS.

UNDER THE CHARGE OF DRS. FORBES AND TURNER.

FRACTURES AND JOINT INJURIES.

The Arthritides

In reviewing the work for a time past there has been some decided advance in this department. A decided move for the better in the nomenclature is being generally adopted which assists in the classification. Arthritis is adopted as a class name with proper subdivisions, and the term Rheumatism should be confined to that specific entity, Acute Rheumatic Fever. More especially in the chronic forms this should be noted, and give some meaning to that indefinite class, the chronic rheumatisms. Goldthwaite and Osgood by means of excellent radiography have shown many of these joints to have synovial membrane and bone involved in a very similar manner to those giving a definite history of some previous infection such as gonorrhœa, and suggest the name of "Infectious" to be given to this class in general. This would include, besides those following definite infections, as typhoid, pneumonoccus, gonococcus, etc., that type of arthritis showing chronic involvement of a joint or joints when, at times it is referred to some tonsillar or pharyngeal infection, at times none such, and yet giving a definite clinical course and the radiograph findings as above. If Infectious be not accepted, at least the term "arthitis chronica" might be adopted. This is invading a very general field and yet the interest in the classification is essential.

Among points of interest in some special regions one must mention some of those affecting the vertebral column. The recognition of typhoid spondylitis is of distinct value; and though not very common the recognition is important. McCrae of Baltimore, has given a good account of the same. The condition again emphasizes one of Dr Osler's maxims, "examine the back." One of the assistants from Litten's Klinik in Berlin cites cases. In these in the early convalescence "back pain" was complained of, very severe in character. On examination definite spondylitis was noted. Radiographs showed actual destruction of tissue of the bodies of vertebræ and the intervertebral disc, causing deformity. The treatment consisted in supporting the column to relieve reflex spasm, to prevent deformity and at the same time pressure to be relieved as much as possible, as the condition is extremely painful. As far as could be judged by the radiograph the bone infection resembled an osteo-myelitis without any special extra-osseous abscess formation. Another form of spondylitis which gives rise to many "back symptoms" is the osteo-arthritic—the small osteo-

phytes, almost needle-like in form, running out in the spinal ligaments. Signs of osteo-arthritis elsewhere and the X-rays are the essential for diagnosis. Chute, of Boston, reports two cases which had been observed for some time, renal calculus being the cause supposed.

Spondylitis tuberculosa.—Here the advance is considerable and the nursing of the active condition has been much aided by the moulding of a plaster of Paris bed to the patient. This extends from the cranium to well down the sacrum with straps across the patient's body to keep him well splinted. Patients are very comfortable and the regulation of the bed pan and general cleanliness is simplified. An additional benefit is the doing away with complicated extension apparatus. In infantile cases, carrying-straps may be added and the child carried around as in a basket, thus getting the additional benefit of fresh air, etc.

This is the present customary mode of treatment in the Lorenz and Hoffa Clinics, and the number of bed-ridden children is much diminished, and the general condition of the patients appeared to be better than in some of the American clinics when recumbency and extension were practised. Hoffa followed this method in 210 cases. A great advance where active disease is present is the gradual (very gradual) correction of the deformity when the plaster beds are changed. Throughout treatment the skin is kept in good condition by means of strips of muslin next to the skin, by means of which the skin may be well rubbed frequently during the day.

Tuberculosis of the joints.—As to diagnosis, much greater attention is being paid to early diagnosis. In nearly all the great clinics the terms "chronic sprain" and "chronic rheumatism" are being much eliminated. The work of Werndorff in Vienna last year has been a decided stimulus. He strongly urged that every joint case giving a history of chronic pain, disability, partial or complete, after a thorough examination should be radiographed. In fact, it was a part of the routine examination with him. This has served to show that the percentage of cases of joint tuberculosis, primarily synovial in origin, is much greater than was formerly supposed. Besides it has been of cardinal importance to differentiate whether the case should have radical or conservative treatment. Naturally where the plate presents a solitary focus of infection, removal of the same is indicated, otherwise the conservative method is *the* one.

WERNDORFF. "Pathology of Tuberculosis of the Hip Joint." *Centralblatt für Chirurgie,* July 21st, 1906.

Speaking of the pathology of Coxitis it is difficult to decide whether it should be treated by operation or conservatively. By the use of

X-Rays we have a method which not only shows us the status præsens but enables us to study the progress of the disease. Werndorff, in a series of cases, came to the following conclusions:

1. In the earliest stages the synovial type can be positively diagnosed by means of the radiograph.

2. The most important and only symptom in the early stages is regional atrophy.

3. The early appearance of the regional atrophy, in one case as early as the second week of the disease.

4. In the beginning of the disease, almost imperceptibly the contour changes in the line between the head of the bone and the shaft of the so-called "femur-neck" line, which remains stationary on the corticollis for a long period of time. This change does not extend beyond the capsule.

5. The destruction of the cartilage cannot be demonstrated in the onset when the articular space becomes indistinct, but it can be recognised much earlier than the changes in the contour of the epiphysis of the head, which must not be confused with normal growth disturbance.

6. In the adjoining part which becomes affected by tubercular atrophy the regionary atrophy becomes typical when there is greater involvement of the joint.

7. The clinical impression gained from the radiograph, even though a beginning destruction of the cartilage is demonstrable, accounts for the pathologic condition of limb-abduction, even though the trochanter major is not above Nelaton's line.

8. The clinical changes from abduction to adduction can be explained by means of the X-Rays.

9. The synovial type of the disease is most frequent.

10. Friedlander's observation that certain localised tubercular areas caused partial limitation of motion, was confirmed by Werndorff. He was able to localise tubercular areas without the use of the radiograph by this method. He also calls attention to two important symptoms —(a) Limited motion; (b) the atypical pathognomonic position—adduction.

11. The X-Ray examination is not only important at the onset but should be made systematically whenever the dressing is changed, for it will positively aid in the diagnosis of the synovial type of the disease Therapeutically the X-Ray examination is an important factor deciding whether a case should be operated on or handled conservatively.

Further, in the question of healing, Dollinger and other men have shown that fibrous ankylosis is almost the regular event and not bony.

Very frequently this last, but especially the occurrence of sequestra follows the addition of mixed infection to the previously existing tubercular one.

In the question of treatment, this comes under two main heads: radical and conservative. The former is adopted when an isolated focus is determined or where the conservative trial has proven a failure. The method adopted is extirpation of the focus, resection or erasion. This treatment was carried out in every case of joint tuberculosis in the Mosetig clinic in Vienna. After removal of the disease he filled in the cavity with a preparation of Iodoform wax. His preparation of the cavity was remarkably good and before pouring in his wax it was well chiselled out and thoroughly dried. His primary results in the way of healing were good, but later results, i.e., after six months, were not obtainable. One fact was noted—the considerable disability in ankle joint cases, where he always extirpated the astragalus, thus quite destroying the firm lateral support of the joint. The various other great clinics are firm for the conservative primary treatment, except that some differ in the case of the elbow joint.

Conservative treatment comes under the heads of Tuberculin, Marmorek's serum, Extension, Fixation and Bier's Hyperæmia treatment. With Tuberculin Ridlon of Chicago, Tunstall Taylor ,Steward of London and others, have been following observations in selected cases. The first named in ten cases concludes that the results are somewhat encouraging though in no way conclusive. A low tuberculo-opsonic index with joint symptoms suggests tuberculosis. In radical treatment a low tuberculo-opsonic index somewhat contra-indicates. Perhaps there appeared to be a slightly greater tendency to abscess formation. Where auto-inoculation is present Tuberculin is contra-indicated.

With Marmorek's serum.—Hoffa's statement that "the serum has a curative action on tubercular processes practically specific" is a great exaggeration, and having personally seen a number of his observations the chance of error is considerable. The conclusions arrived at by one man (whose name I have unfortunately forgotten) reporting "There is no reason to believe any harm may come from the remedy," suggest the quite inconclusive state of opinion at present.

Fixation by the Thomas' splints or plaster of Paris.—The effectiveness of this treatment is seen in the fact that it is the accepted continental method. It is very generally adopted in England, though many of our American colleagues are still loyal to the extension methods of Taylor. Bennie of Melbourne, has given a very good summary and results following the treatment of Thomas, of Liverpool, slightly modified. Plaster of Paris is the method in the great Continental clinics.

Before referring to Bier's hyperæmic methods it would be wise to mention the question of treatment of tubercular or cold abscess. The danger of incision and drainage is now fully recognised, and this should be more emphasized in our teaching. Secondary infection is almost the rule. Throughout the Continent, the majority of the leading Englishmen, and many of the American surgeons adopt the principle of aspiration, or incision removing all possible and then tightly sewing up. The surgeons at Great Ormond Street, in addition, sew up fascia and skin in layers, thus providing an additional precaution against sinus formation, also using interrupted sutures when doing the same.

Bier's hyperaemic treatment:—This is being much used, with the rubber bandage, glass cup, the vacuum chambers and hot air. Schmieden, Bier's first assistant, gave little new in his last articles except the great value of the "Stauungsbinde" in gonorrhœal arthritis. There has been no loss of confidence among the followers of this method.

Injuries to bones or joints.

In connection with this subject attention is drawn to a further aid in the diagnosis of certain shoulder joint injuries. Codman of Boston and Baer ,of Baltimore have presented the fact that many of the supposed shoulder joint disabilities are really quite extra-articular and due to inflammation of the sub-deltoid bursa. This bursa extends normally at least ½ an inch or more under the acromion and over a finger's breadth below the same. Thus any inflammation causing adhesions in the bursal sac will easily cause extensive disability of the arm, especially abduction and rotation disability. When one appreciates this and how frequently it is exposed to trauma the occurrence is by no means an uncommon one, and the relief much simpler than in an articular condition.

Attention should be called to a paper by Jones, of Liverpool, written in 1906 "On certain injuries associated with displacement of the head of the humerus" in which the writer presents 26 cases. It is a valuable contribution accompanied by radiographs which illustrate the variety of conditions which may occur. The importance of early reduction of the dislocation is impressed; and this should be accomplished before the fracture is treated. The writer found that the method found most useful consisted in powerful vertical extension and at the same time pushing up of the lower fragment.

Bardenheuer, of Cologne, at the German Othopædic Congress, 1907, presented a paper on the "Prophylactic treatment of Joint Injuries against ankylosis," and called attention to the fact that in these injuries hæmarthrosis is almost to be expected where any dislocation or fracture

occurs. Gräsner who presents the best X-Ray plates I have seen, reports that in 48 dislocations 24 or 50% presented some fracture usually of the greater tuberosity. Naturally in a hæmarthrosis fibrin deposit or adhesions are to be avoided, and for this purpose extension is advised. This extension is carried vertically above the head and after 2-3 weeks, passive movement and light exercise are practised. In cases like those cited by Jones he carries the extension at right angles from the body. The results are certainly gratifying. Where the injury has been elbow or lower arm he uses an extension splint, very ingenious and yet very practical. Previous to the splint being applied or while waiting, the arm was kept flexed at an acute angle. Both he and Alexander find that this position is very valuable, and especially so, because any fragment tends to work out from between the articular surfaces and reduction is obtained. The experience gained from 212 cases furnishes the conclusions.

Jones, in an article on elbow joint injuries, declares that every one of such, except fracture of the olecranon he puts in the acutely flexed position. His clinical experience confirms the cadaver experiments of Cotton of New York, who found that this position reduced the fracture and prevented displacement. Scudder also confirms this in his book on fractures.

As to fracture in general the extension treatment by Bardenheuer is much used in Germany. Arbuthnot Lane applies in as many of his cases as possible small steel plates and screws.

Jones routine treatment is: the arm remains acutely flexed for 2 weeks, held there by means of a neck ring and wrist cuff joined. If the elbow has been progressing favourably he lowers the hand 1 to 2 inches. If the progress has been satisfactory the patient next day should be able to raise the hand the 2 inches. If not the elbow is again acutely flexed.

Hennequin of Paris uses 4 fingers thickness of wadding as a first dressing in simple fractures until the swelling has subsided somewhat and then splints. Elastic pressure is carried out by means of this thick dressing with very beneficial results in the first stages of treatment.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The tenth regular meeting of the Society was held Friday evening, February 21st, 1907, Dr. Wesley Mills, President, in the Chair.

A. E. Garrow, M.D., exhibited three living cases which he had operated on:

1. Extensive Necrosis of Tibia.

2. Bone Cavity filled with Mosetig-Moorhof Preparation. (Illustrating this with X-ray plates of other cases treated in this way.)

3. Carcinoma of the Breast.

This case resembled very much a chronic cold abscess, though it proved to be a medullary carcinoma; no recurrence after one year.

G. E. Armstrong, M.D.—This method of dealing with bone cavities is one which I have employed in a number of instances with great satisfaction. While on a visit to Germany, Moorhof assembled for us some sixteen or eighteen cases in the various stages of repair, with skiagrams taken at different times, which were very interesting. There were two elements upon which he depended for success, apparently, and one was the securing of a sterile field. To obtain this he scraped thoroughly, removed all infected soft tissue, and then applied one per cent. solution of formalin, which he found most satisfactory.

The other element was the securing of a perfectly dry cavity. This he obtained by the use of a hot air apparatus, similar to that used by dentists, only much larger, specially constructed for himself. So far I have dried these cavities with the point of the thermo-cautery carried to a white heat and passed along the walls. I think though to get the best results we should have a better way of drying these cavities. The element of dryness is almost as important as the one of sterilization. One case of death from iodoform poisoning was reported from a neighbouring province, in which a cavity in the femur had been filled. I had a full account of the history of the case and the symptoms certainly pointed to this and I could find no other cause. There was also a similar case reported in an American journal. Moorhof, however, used it extensively, and he assured us that he had never seen any trouble arise from its use.

A. E. Garrow, M.D.—I had the opportunity of seeing quite a number of Moorhof's cases and seeing him work. I adopted the plan of drying out the cavity with absolute alcohol, allowing a certain amount of time for evaporation. In extensive cavities I have had invariably a breaking down and extrusion of the preparation with in a few cases a successful closure, but in the majority of these cases they have to be scraped out on more than one occasion before closing.

PERIPHERAL ATROPHY OF THE CORNEA.

J. W. Stirling, M.D., exhibited this case.

W. F. Hamilton, M.D.—I would like to ask if this condition has anything whatever to do with Arcus Senilis, and, further, if Dr. Stirling knows of any nervous change accounting for the condition.

J. W. Stirling, M.D.—The first few cases which were reported, occurred in elderly people, and it was thought that it must be associated with arcus senilis. The pathological changes are fatty degeneration of the substantia propria, such as occurs in arcus senilis, but in the disease under consideration the degeneration proceeds further, the tissue breaks down and undergoes absorption. Cases, however, have been reported in young people, in whom arcus senilis does not occur and hence all that can be said is that it is a similar condition to arcus senilis. As to a nervous cause being at the bottom of it, I am unaware of any proof of it.

A CASE DEMONSTRATING A METHOD OF TREATMENT FOR LUMBAR POTT'S DISEASE, WITH SHORT NOTES ON THIS METHOD.

A. MacKenzie Forbes, M.D.

A. E. Garrow, M.D.—I would like to ask Dr. Forbes if the application of the bandage in this position is meant practically and entirely for the early stages, that is, before deformity and fixation. Otherwise, it seems to me a pretty trying position to force the child's spine into, if the case is anyway advanced. This position is one which is adapted for the treatment of early stages of lumbar disease.

W. F. Hamilton, M.D.—I would like to ask if the patient is so fixed that she can walk around and enjoy change, fresh air, etc., or if this position is for the complete rest in bed treatment. My experience with these cases is that they are only successful when complete rest in bed has been enjoined.

A. MacKenzie Forbes, M.D.—In answer to Dr. Garrow's question. The child had had lumbar Pott's disease for from eighteen months to two years. As to the method, I may say that it is very much to be preferred for the early cases, though it is advantageous in the older cases as well.

This child has a marked deformity, which might easily have been seen had I arranged my jacket in the usual way, that is, by cutting a window over the deformity.

The method may be advantageous in sub-acute and chronic cases because, as we know, in the majority of cases of tuberculosis of the spine there is more fibrous repair than bony, and it is quite possible that if we can hold the spine in good position and allow time to elapse bone may fill in the space which is left by the disease.

I agree with Dr. Hamilton that general rest is essential in the treatment of tuberculosis of the spine. The trouble is that we cannot get this in all cases, especially with the poorer classes. I would suggest as the best treatment for patients suffering from spinal disease that they

be treated by a jacket and kept in bed all the time in the open air. In those cases where this is not followed we put them in some form of ambulatory treatment, say in jackets, and trust that they will get as much rest and fresh air as possible. The treatment carried out here is a treatment for use in bed and for ambulation.

James Bell, M.D., read the paper of the evening, entitled,

EXCESSIVE LENGTH OF THE SIGMOID FLEXURE AND ITS SURGICAL SIGNIFICANCE.

F. M. Fry, M.D.—Hirschsprung, of Copenhagen, who first described congenital dilatation of the colon, reported no less than one hundred cases. He demonstrated an interesting point in the morbid anatomy, viz., atrophy or absence of the longitudinal muscular fibres of the bowel with extreme hypertrophy of the circular fibres. Thus, the more the colon contracted, the more obstinate was the constipation. In the large German clinics practically only one treatment was adopted, viz., daily copious irrigations of the entire large bowel.

A. E. Garrow, M.D.—With the exception of one or two cases of acute intestinal obstruction due to volvulus of the sigmoid my experience is limited to a single case, which came under my observation during the last three weeks. The patient was brought into hospital for severe vomiting and profuse diarrhœa, which had existed for five weeks. During the summer and autumn of 1907 she had had two such attacks lasting from two to three weeks. A year previous she had been in hospital for some pulmonary condition, but was discharged quite well. On examination of the case the whole abdomen was more or less distended and there was visible peristalsis. Under rest treatment and the use of enemas the distension largely subsided, the peristalsis disappeared and the patient's condition seemed to improve. I distended the bowel from below with gas, thinking that probably the scar from a previous operation for appendicitis might be the cause of the obstruction. Immediately a transverse tumour, three or four inches in diameter, made its appearance just above the pubes. On removing the rectal tube this rapidly disappeared. I now looked upon this as the transverse colon. Next day, on opening the abdomen, the small intestines were found contracted and an enormous dilated sigmoid was found running from twenty to twenty-five inches across. The cæcum was adherent, it was true, to the old scar by a slight, somewhat short, adhesion, but there was no evidence of obstruction here. The cæcum and the transverse colon descending colon were uniform in size, probably contracted to about 1 or 1½ inches in diameter, whereas the sigmoid ran from 2½ to 3 inches in diameter. Having had no experience with the radical

operation, it was believed that we could do for the patient equally well by providing for a large anastomosis and brought the proximal distal loops together making a three inch anastomotic opening by suturing between the proximal loop and the distal loop with a purse-string suture drawing up the end into a very small mass and closing up the bag lying between the anastomosis and the sigmoid so that by no possibility could the small intestine get in through and become strangulated. On the second day the patient's bowels moved normally, and so far as I could judge the treatment has been quite satisfactory. There is no distension, and the patient has improved so far as her indigestion symptoms are concerned by taking to food readily, and the general abdominal condition has been much improved. This is the only case I have met with of the so-called giant sigmoid.

Geo. E. Armstrong, M.D.—Dr. Bell has brought before us a very interesting subject indeed, and one very timely, as it is occupying much attention at the present time. It would seem as if we were really dealing with two conditions, one which is congenital, and a second acquired condition. One remark in Dr. Klotz' report is of interest, namely, that where there is lots of room, where the lower end of the descending colon does not come too far down and is not too fixed, there is very little danger. The danger arises when the long fixed end of the descending colon and the upper fixed end of the rectum are near together. When these two points are close together and fixed, then volvulus may occur. In the second class, possibly more common in adults, it has seemed to me that the teachings and demonstrations of Mr. Lane in regard to the formations of bands are sound. Mr. Lane has published two papers, one in the *British Medical Journal,* and another in the Chicago *Journal of Surgery, Gynæcology and Obstetrics,* where he figures all the conditions—the formation of bands, the distension, and the fixed points. In the hepatic flexure, the colon is tied up under the liver, and in the splenic flexure, it seems to be tied up in the peritoneum extending to the diaphragm. It seems to me that this paper illustrates pretty well the ætiology of the condition as arising in some cases, at least in adults, from chronic colitis, causing bands which first hold the gut down or at most obstructing its movements. One of my cases was a young man, practically an imbecile, in which the condition was very extreme and had been going on practically all his life. The sigmoid here occupied the whole of the hollow of the diaphragm and the apex of the heart was visible and palpable in the second intercostal space. The volvulus had occurred in the usual way, and lay across the transverse colon. There was a large distended hepatic flexure, a large distended splenic flexure with this distended sigmoid

occupying the whole of the diaphragm. I brought down the sigmoid and unravelled it. The obstruction, however, in these cases is not always due to volvulus. In some instances the largely distended sigmoid seems to fall down producing a sharp kink at the upper end of the rectum, and this again results in a complete obstruction. In a case which I reported before the Society here, the obstruction was the result of an enormously distended sigmoid, falling downwards and kinking in this way. The man was fifty years of age, and gave a history of alternating constipation and diarrhœa since early childhood. In this case the obstruction was complete. A lateral anastomosis was made between the two arms of the sigmoid. This, however, did not prove to be a satisfactory arrangement. Gas accumulated at the end of the sac—hardened fæces lodged there so that I was obliged later on to remove the distended end altogether. After that the patient did very well. These cases may sometimes be recognized from the fact that they are relieved for the time being by the passage of a high rectal tube. In these cases, when of long standing, the changes in the walls of the bowel are of interest. In some cases there seems to be accompanying the distension a very considerable hypertrophy of the muscular coats, particularly of the circular parts. In others the coats are thinned to an extreme degree.

What influences determine whether the hypertrophy be of the concentric or eccentric variety may be difficult to determine. Possibly the eccentric may be a later stage of the concentric. The presence of concentric hypertrophy certainly suggests an obstructive condition as one of the etiological factors. Mr. Lane's cases are very interesting, and his results in cases where medical remedies seem to have failed altogether, cases in which there was present inveterate constipation with a marked degree of toxæmia are wonderfully good. I had the pleasure of watching him perform two or three of these operations during the past summer, and of seeing some of his cases a considerable time after the operation, and their condition, according to their own statement, was wonderfully improved.

James Bell, M.D.—In reference to Dr. Fry's remarks, I may say that I was probably a little too sweeping in my statements with regard to operation; I quite see that if one could recognize these cases sufficiently early, washing out daily of this tract would be of benefit. There is a large element of the acquired in these cases in children, although there is probably a larger element of the congenital. The bowels should be kept evacuated and the general health and nutrition maintained, but once the condition in which the child was is reached, it is quite impossible to restore the function to the sigmoid and the statement that

excision is the only satisfactory treatment refers to such cases as that and not to the early ones.

PATHOLOGICAL SPECIMENS.

TWO CASES OF TUBERCULOMA OF THE BRAIN.

Oskar Klotz, M.D.—The first specimen, which I wish to present, is the brain of a woman aged thirty-five years, in which a solitary tuberculoma is found in the left hemisphere. The lesion is situate immediately below the lower end of the post-central gyrus. The focus is 3.5 cm. in diameter, and lies external to the internal capsule in this area. It involves, to the greater extent, the white matter pressing this asunder, but, no doubt, involving also the fibres. There is a small margin of cortical substance also included in the lesion. Some fibrosis has taken place in the centre of the mass, but the greater portion consists of a greenish, cheesy material, which, when fresh, was more or less mucoid. Tubercle bacilli were isolated from the lesion. There was no meningitis present.

The interesting features of the case are that during life no localizing symptoms were manifest. The history dates back some six months, when occasional vomiting and double vision were complained of. There was also some paresis of the left external rectus. Further than this no impairment of the motor nerves was noted.

The second specimen was obtained from an infant seven months old, in whom a tuberculous meningitis was demonstrated during life; the child had suffered from an acute middle ear disease which had been operated on some months previously. Just previous to death some signs of a localized lesion of the brain became evident.

At autopsy, there was an extensive tuberculous meningitis over the hemispheres, with considerable exudate at the base. On cutting the brain a small tuberculous nodule, 1 cm. in diameter, was found in the left optic thalamus in the region of the pulvinar. The tuberculous process could be followed from the base of the brain along the vessels of the posterior perforating space to this lesion in the optic thalamus. No tuberculous process was evident in the ventricles.

ENLARGED THYMUS.

This specimen is from a newborn male infant, who had lived only five hours. At birth the thick neck attracted attention.

At autopsy the thymus was found to occupy the greater part of the pleural cavities, and, at first sight, resembled partially dilated lungs. The right lobe was 6 cm. long and 4 cm. wide, while the left was 4.75 x 3 cm.. The thymus extended from the enlarged thyroid to the diaphragm below the pericardium. There were some enlarged glands

along the vertebral column of the neck. Otherwise the lymphatic system showed no change. The thyroid was large and lobulated, and there were three good sized parathyroids found. There was an excessive deposit of fat in the tissues and along the inner surface of the intercostal muscles.

The case has the features of status lymphaticus, save that the mesenteric glands, spleen and Peyer's patches were not enlarged.

HYPOSPADIAS.

This specimen of hypospadias was obtained from a new born infant. The specimen is the commonest type which occurs of this lesion. The penis is small and has a cleft on the under surface lined by mucous membrane. The cleft denotes the ununited edges of the urethra and opens at the root of the organ. In this case the two halves of the scrotum have joined. The genitalia are otherwise normal.

ANENCEPHALIC MONSTER; FIBROID UTERUS.

Lapthorn Smith, M.D., showed for Dr. McGovern, an anencephalic monster which the latter had delivered the night before, and which had puzzled him a good deal. On examining the patient he had felt a soft bag leading everywhere to a bony ring. As the bag of membranes had been ruptured some time, he came to the conclusion that he had a breech presentation, and that this was the scrotum and that the bone he felt was the outlet of the child's pelvis. He called a neighbouring doctor in, and he also came to the same conclusion. As labour was going on nicely they decided to wait a little, and in due time this child was born dead. It has a hare lip and absolutely no brain as far as can be felt through the flabby sac which represents the scalp. The scalp has not been opened for fear of spoiling it as a museum specimen. The scalp feels exactly the size and consistency of a scrotum, and it is no wonder that Dr. McGovern was puzzled when he felt it presenting through the os uteri.

Dr. Lapthorn Smith also showed a fibroid uterus which he had removed that morning, and which presented great difficulties owing to its being not only impacted in the pelvis by its size but also adherent. Owing to the impossibility of reaching the arteries the hæmorrhage at first was profuse, until he thought of Kelly's advice in such cases, to cut boldly down through the middle of the uterus and roll the two halves out in turn. From that moment there was no more hæmorrhage, and the operation became very easy.

The eleventh regular meeting of the Society was held Friday evening March 6th, 1908, Dr. Wesley Mills, President, in the Chair.

SUPPOSED CURE OF TABES: LIVING CASES.

D. A. Shirres, M.D.

C. K. Russel, M.D.—I do not think any apology is needed in introducing cases of Tabes to the Society. Their interest from a physiological point of view is sufficient. This first case is extremely interesting but I should have liked Dr. Shirres to have given us more of the points on which he made the diagnosis of Tabes, on account of the patient's practically complete recovery. One knows that multiple neuritis may very closely simulate Tabes and the Argyll Robertson pupil is found in other conditions besides Tabes. In one of the cases Dr. Shirres referred to which I showed to the Society a short time ago the patient was neurotic but I look upon that rather as a hindrance in the re-educative treatment than as a favorable condition. One point however could not be considered as a neurosis and that was the incontinence of urine, and this has been favourably influenced by the re-educative treatment. No electrical treatment was used for this and it seems to me in view of Edingers theory this treatment is more rational and certainly less open to danger than electrical applications to the sphincters and bladder.

The worth of this treatment I think is established. It is an educative treatment not of the fibres that are sclerosed but of other fibres to take on the functions of those that are dead:

DIAGNOSIS OF GONORRHOEA IN THE FEMALE.

F. B. Gurd, M.D., read the paper of the evening.

W. W. Chipman, M.D. I wish to thank and congratulate Dr. Gurd upon his excellent paper. He has put before us a subject of great interest. He has done so clearly and succinctly, and has furnished us with the latest word in bacteriological methods. There are in this paper a number of points in which I am especially interested. Gonorrhoea in women is oftentimes a disease difficult of detection, and any new light that may be thrown upon the subject, or any new means that may be provided to enable us more easily to detect the organism itself is of special value. The first point that Dr. Gurd has brought out in his paper is that the ordinary staining methods of detecting the gonococcus are more or less unreliable. To be sure of the organism with which we are dealing we must have recourse to the cultural methods and to these only. His own work in this respect has been thorough and painstaking. He gives a history of 113 cases wherein extensive bacteriological examinations were made. Of these 113 cases, 50% were definitely positive, that is, both by staining and cultural methods, in 50% of the cases the gonococcus was definitely distinguished. This of course is a fairly large percentage, and speaks for itself of the

thoroughness of Dr. Gurd's work. Nevertheless there remains half the number of cases which are pronounced bacteriologically more or less doubtful. It is just in these doubful cases also that the great difficulty of making a clinical diagnosis arises. In these cases we meet with the clinical signs of the disease, and yet we cannot find and isolate the organism. In these difficult cases I consider that the ultimate appeal must always be to the clinical aspect of the case; that we cannot say that because we do not find the organism, therefore the disease is not gonorrhœa. We all know how difficult it is, how oftentimes impossible, in typhoid fever to secure the Widal reaction: and in cancer to recognise the early histological picture. In the question of cancer one may go even further, and say that even the complete histological picture does not always mean the presence in a clinical sense of malignant disease. So that, in these 50% of doubtful cases we are more or less deserted of everything save the clinical picture of the disease before us. I would like to ask Dr. Gurd as to the morphology of some of the degenerate forms of organisms found in the vagina, and as to the variety of degeneration which in his experience the gonococcus therein undergoes; whether it is always possible to isolate and distinguish Weichselbaum's diplococcus, and the so-called pseudo-gonococci of Bum and Lustgarten. Again I wish to thank Dr. Gurd for his paper, and to congratulate him upon its excellence.

A. Lapthorn Smith, M.D.—Dr. Williams and I carried out a series of experiments five years ago at the Montreal Dispensary on just this point of the bacteriological examination for the gonococcus. We collected some 60 or 70 cases and my impression is that about 10 percent were found positive by culture. Some of the cases that I had diagnosed as non-gonorrhœal showed the organism, while others clinically positive gave no gonococci. From this I fell back on my old plan of working on the clinical basis. I would be glad to hear that Dr. Gurd has persevered with his researches until he will be able to give us a positive opinion in cases which we sometimes have, where a woman comes to us demanding to know whether she has gonorrhœa or not. If by the methods he has described we could do this it would be a great step in bacteriology.

J. C. Cameron, M.D.—If it is true, as Dr. Gurd's observations seem to show, that the gonococcus is to be found in the vagina of pregnant women much more frequently than we have commonly supposed, without even producing symptoms which would cause discomfort or arouse suspicion, it strikes me very forcibly that the old-fashioned and much maligned prophylactic douche was not such a bad treatment after all

and that we might sometimes save our patients many risks and dangers, if we used it more frequently. As regards morbidity after confinement I am under the impression that we had better results in hospitals when the prophylactic douche was used sedulously and vigourously in all suspicious cases, than we have had ince we have acted upon the theory that, if let alone, the vagina is capable of protecting itself against infective organisms and that consequently a prophylactic douche is not only unnecessary but even injurious.

To my mind the point of greatest clinical importance in this paper, from the obstetrical point of view, is that although the vagina seems to be capable of protecting itself against the organism when it is whole and sound, yet it loses that power when invaded by the gonococcus and weakened therby.

Another clinical point of value is that on account of the unreliability of smear preparations in the matter of diagnosis, we must fall back upon the cultural method. Now practically, as general practitioners, how does this affect us? Smears are easily made but are unreliable as a diagnosis; cultures are the only safe and sure way of getting trustworthy results, yet the most of us have neither the time, nor the facilities nor the experience to carry out this method. In hospitals, well equipped laboratories are at command and diagnosis should be easy, but in private practice what facilities are available? Of what use is it to us clinically to know that a diagnosis of the presence or absence of gonococci in certain suspected secretions could be made bacteriologically, if we do not have access to a laboratory? It seems to me that this is a matter for this society, that it would be quite within the Society's rights to propose the establishment of a clinical laboratory open to all, a civic laboratory or government laboratory if you will to establish the diagnosis of diphtheria, typhoid etc., and also to help those engaged in obstetric practice to work out these interesting and important problems.

C. W. Duval, M.D.—I followed Dr. Gurd in his work at the laboratory for the past year and I wish to say that I regard his paper as a most excellent and painstaking piece of work. I do not think, however, that Dr. Gurd lays quite enough stress upon the unreliability of the smear preparation as a means of diagnosis, and also not enough stress upon the ease with which the gonococcus may be isolated. If the food stuff and the reaction of the medium are correct, the gonococcus is an easy organism to cultivate.

(To be continued.)

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THE TREATMENT OF INFECTIVE DISEASES BY BACTERIAL VACCINES.

BY

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A bacterial vaccine consists simply of an emulsion of sterilized bacteria of known numbers per volume.

In the past they have been prepared in many ways, but now the procedure is as follows:—

The organism is grown in pure culture in a nutrient medium for twenty-four hours at blood heat. It is then removed and emulsified by rubbing it up with saline sol. (0.1 per cent.) in an agate mortar. After this it is centrifuged and washed, but no attempt is made to triturate or treat it otherwise. It is now standardized, that is, the numbers per c.c. are counted approximately. A sufficient volume is pipetted off containing the desired number of bacteria for a dose. This is sterilized and sealed in a vial ready for use by subcutaneous injection with aseptic precautions.

While this method is adopted for staphylococcus, streptococcus, pneumococcus, colon, etc., vaccines, the new tuberculin T. R. is triturated more vigorously and disintegrated, then centrifuged and filtered, and is a solution of the bacilli. It contains 10 mgm. solid to 1 c.c.

I come now to the mode of action of vaccines as far as is known. This really introduces the subject of immunity, or the method by which the body protects itself against infection, with the result that the bacteria are held in check or disposed of. Immunity is itself described as spontaneous or acquired.

Spontaneous immunity is seen in races in the comparative insusceptibility of the black man to yellow fever and malaria, while the susceptibility of the Pacific Islanders to measles is known. Again, Algerian sheep and white rats are insusceptible to anthrax, while European sheep

and the brown rat are highly susceptible. Acquired immunity, on the other hand, results either as to the natural sequence of infective disease, and is well seen after small-pox, scarlet and yellow fevers, or as a transient state after diphtheria, pneumonia or erysipelas, or as the results of treatment.

Immunity is produced in two ways, either actively or passively: active immunity by seeking to call into action the natural protective processes of the body. An example is seen in vaccinia where vaccination is practised and the mild resulting infection protects against variola. Similarly, but by artificial means, the defensive mechanism is put in play by bacterial vaccines.

For various reasons vaccination is the fashion just now, and is receiving an extensive trial, but I would emphasize that immunity can also be produced *passively*. This results from the introduction into the body of anti-bacterial or anti-toxic substances or sera, obtained *ready made* so to speak, from animals, by the process of inoculating them either with bacteria or bacterial toxins.

The most favourable example of this is seen in diphtheria, in which the mortality has been reduced from 29.29 per cent. of patients treated in 1894 to 11.15 per cent. in 1901 (Metropolitan Asylums' Board). In Chicago the five year pre-anti-toxin period exceeded by 42 per cent. the actual number of deaths in the succeeding five years.

The question arises, "Why not use sera more frequently?" The reason is that a serum of high potency cannot always be produced. I will attempt a possible explanation. Diphtheria and tetanus differ from most infective diseases as tubercle, staphylococcus, pneumococcus, plague, Malta fever, etc., in being "intoxication" diseases, and their bacilli when grown in broth produce soluble poisons of toxins. Staphylococci, etc., produce little or no *soluble* toxins. We have seen that it is from the injection of these toxins into animals that the production of protective (and curative) substances or anti-toxic sera result. Thus, the injection of sterile cultures of certain infective diseases results in little or no anti-toxin being formed, though anti-bacterial bodies may be. In short, the injection of bacteria or their toxins in animals does not always result in a *proportionate* amount of these anti-toxins being formed. Hence there is no cumulative action in inoculation and sera of a high potency cannot always be obtained, and lack of success has resulted in their use. The reason for the extreme potency of diphtheria anti-toxin I cannot explain.

I mention some of the substances which may be present in the blood and which are hostile to the presence of bacteria. Bactericidal bodies

kill bacteria, bacteriolysins dissolve them, agglutinins and precipitins compel bacteria to clump together, opsonins help to prepare bacteria for digestion, etc., etc. Some of these bodies are complex, being composed of two substances. Thus bacteriolysis depends on the presence of two substances. One is specific, that is, specially antagonistic to the microbe in question (and can be formed by inoculating an animal with the microbe); the other substance is present in ordinary blood serum and rapidly disappears if blood is drawn. The former is known as "immune body" (amboceptor) and being able to withstand heating to 60° C., is called thermostable. The latter is known as complement (receptor alexin addiment cytase or hapton) and is thermolabile. As these opsonins prepare bacteria for ingestion by leucocytes, much importance is attached to their study, but I am quite sure that the study of phagocytosis cannot be neglected.

Phagocytosis, or the ingestion of foreign bodies by leucocytes is usefully distinguished as "spontaneous" and "induced." Spontaneous phagocytosis is defined as that process of ingestion which occurs when bacteria or inert particles which have not been acted upon by the blood fluids are submitted to the action of washed leucocytes in an indifferent medium (as physiological salt solution). It differs from that known as induced phagocytosis in certain respects, being less rapid and less complete. Induced phagocytosis is that observed when leucocytes are brought in contact with bacteria which are or have been submitted to the action of serum. The experiments of Wright and Douglas go to prove that phagocytosis is very largely dependent upon the presence in the blood plasma and serum of these opsonic substances, while the leucocytes are regarded as playing a subordinate part. As a corollary, immunity of cure, when brought about by vaccine treatment (which stimulates the formation of opsonins and raises the "opsonic content" of the blood) may be said to result from changes in the blood fluids rather than in the white corpuscles. On this depends the belief that the "opsonic index" of blood is the gauge of a person's powers of phagocytosis, because the person's own leucocytes are neglected as a factor, and, indeed, are not used in the experiment. Wright and Douglas believe that differences in the phagocytic count depend on the properties of the serum, not on the "strain" of the leucocytes, "æqualia æqualibus." In my opinion this distinction may be too rigidly drawn. Variations in structure and function are infinite in the animal body, and why should the blood cells escape them?

Thus the powers of phagocytosis of the different varieties of leucocytes in the same person are well known to differ, and this, I and Dr.

Williams have demonstrated. Again, at the Exeter Meeting of the British Medical Association, I described some observations made in the Ralli Laboratory, which showed that the polynuclear leucocytes of a healthy person were three-fold as phagocytic as those of a patient with myelocythæmia, "æqualia æqualibus." The variation from normal leucocytes in this case was, therefore, both of structure and function.

Also the brilliant work of Dr. Opie is quoted in Sir A. E. Wright's address in the *Lancet* (Augsut 17th and 24th, 1907), in this respect, in which Dr. Opie indicates that in addition to ingestion of bacteria by leucocytes, digestion must occur, if the patient is to be protected. Dr. Opie has proved that leucocytes, freed from blood serum, are able to digest blood clot and gelatine, though *not* in the presence of serum. This reminds us of Metchnikoff's views of the importance of phagocytes and of their digestive ferments. On these grounds the further study of the leucocytes is requisite and further points at once suggest themselves for research. Shattock and Dudgeon confirm this view, that immune leucocytes may have a higher phagocytic power than normal ones (April, 1908, Royal Soc. Med.).

A word as to our knowledge of opsonins. Muir and Martin (Proc. Roy. Soc. B., Vol. 79, 1907) believe them to be of two classes; one of the nature of immune body (specific substances) resistant to heat; the other of the nature of complement, an unstable substance in normal serum. Wright and Bullock (*Lancet,* 1905, II., p. 1605) consider them to be specific; Simon (*Jour. Exper. Med.,* Vol. VII., Dec. 14, 1906, No. 6) does not find them so. Dean (Proc. Roy. Soc., Vols. I., and XVI.) and also Smith, have shown that they are not altogether destroyed by heat, which agrees with Muir and Martin's work. (The opsonic power is said to stand at about one-half of what it was originally after standing five or six days, and Simon considers that it is necessary to dilute the serum to estimate the opsonic content.)

The last consideration is the administration of the vaccine, and this is all-important when we remember the disastrous effects that followed over dosage with Koch's old tuberculin. Therefore, I quote to you the practice of Sir A. B. Wright: "Where an examination of the "patient's blood, taken twenty-four hours before inoculation, shows a "subnormal index, and examination of his blood taken twenty-four hours "after inoculation shows that the index has been considerably reduced, "I take it that the smaller dose would have been appropriate. Where "examination of the blood twenty-four hours after inoculation shows "that the index has been raised, and where, after the expiration of "a week or ten days, the index has fallen back to what it was before

"inoculation—I take it that a larger dose might appropriately have "been administered. Where, in association with a slight initial fall "after inoculation, the index is, after the expiration of a week or ten "days found to stand higher than it was at the outset, I take it that "an appropriate dose has been administered."

However, Simon and his co-workers claim that the opsonic content of a person's blood varies much more than the determination of the opsonic index by Wright's method shows. For an opsonic index to be a safe guide, as I have indicated, extreme technical care and expenditure of time is necessary. Thus the opsonic index is said to range in healthy persons (Wright and Bulloch) from 0.8 to 1.2 for tubercle. Now, if the serum of a patient be compared with that of an individual whose standard is 0.8, and his opsonic index were 0.9, by which he is said to be free from tuberculosis, whereas if the standard serum were 1.2 his index would be 0.6, or tuberculous.

At the Sussex County Hospital we have examined the opsonic index of about 100 patients, some a great number of times, and certain of these have been treated by vaccines and improved. These have been tuberculous, staphylococcal, and streptococcal infections, and we feel justified in saying that, in cases properly selected, good results have accompanied the administration of vaccines and ill effects can be avoided.

A happy medium is to be drawn between a too rosy and a too pessimistic view of the value of vaccine treatment.

[We are not able to append Dr. Bushnell's figures on account of space. The most satisfactory cases are those of tuberculosis of the hip, knee, urinary tract, and epididymis; the organisms used are B. tuberculosis, staphylococcus, streptococcus, pneumococcus, B. neoformans, B. diphtheroid, B. coli, B. pyocyaneus and B. typhosus.—Editor.]

"HEPATIC TOXÆMIA."—"FATAL ACETONÆMIA."

BY

E. J. Williams, B.A., M.D.,

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On May 8th, C. B., female, æt. 14, was referred to me by Dr. T. L. Brown, of Richmond, for operation for acute appendicitis. The attack had commenced on the previous day at noon. The patient complained of excruciating pain in the right iliac region and vomited twice during the afternoon. The temperature was 100, and the pulse 90. Although the patient seemed somewhat improved the following day, Dr. Brown decided to bring her to the hospital for operation.

She came to the operating room at 12 o'clock noon, and the anæsthetic, chloroform, was administered by Dr. F. J. Austin. Throughout the whole course of the operation nothing of any moment occurred. The patient was under the influence of chloroform for one hour and fifteen minutes.

The appendix was easily located, but was gangrenous throughout one-half of its extent. As there were no adhesions, the appendix was quickly removed and the stump inverted, and a purse string suture applied, an extra row of Lambert sutures covering in the meso-appendix and appendix. The wound was closed by the layer method, no drainage being used.

As I had to leave for Montreal within half an hour after the operation was completed, I referred the case to Dr. W. W. Lynch, to whom I am indebted for the following report: The patient regained consciousness from the anæsthetic very quietly, vomited slightly at 7 p.m., and was nauseated until 11 p.m., when she became rather restless. Morphia 1-16 was given hypodermically, after which she passed a quiet night, sleeping well until 7 in the morning, when she appeared much brighter. From 7 p.m. to 7 a.m. 25 ounces of urine was passed. All day Saturday the patient was quite comfortable, being only slightly nauseated at 5 p.m. The pulse ranged from 90 to 98, temperature 97. The amount of urine from 7 a.m. to 7 p.m., 19 ounces.

At 1 a.m. Sunday the patient complained of slight pain in the abdomen and soon became very restless. This restlessness increased during the night until it assumed a very marked form of hysteria towards morning. At 9 a.m. the patient became delirious and very violent, requiring the constant attendance of two nurses to control her. A sixteenth of morphia was given followed in an hour by another sixteenth. At noon the patient became comatose and remained so for one hour. At 2 p.m. the delirium recurred, there was incontenence of urine and vomiting of dark brown fluid. This was followed by profound coma. This condition was present up to the time I saw the patient at 10.30 Sunday night, after my return from Montreal. Examination made during the day on Sunday showed normal reflexes, no ankle clonus, Babinsky's sign negative, pupils reacted to light and were slightly dilated, corneal reflex slow and at times absent, no retraction of the neck or tender points about back or abdomen. Heart and lungs negative. No paralysis and slight cutaneous anæsthesia.

On my return from Montreal I immediately went to the hospital and found the patient in a desperate condition, pupils dilated, corneal reflex absent, patient vomiting intermittently thin, watery, brown fluid, profound coma, no paralysis, but a slight rigidity of the muscles of the

legs and arms. There was incontinence of urine, the pulse was fairly strong and temperature subnormal. Stomach lavage and continuous saline irrigation in the rectum was resorted to. The patient was catheterized and 8 ounces of urine withdrawn. She had passed 12 ounces in the previous twelve hours, besides a certain amount passed involuntarily.

At 4 a.m. Monday pulse became very rapid, irregular and weak. Cheyne-Stokes breathing commenced, and at 5 a.m. cyanosis set in, which gradually became more marked, until death at 6.30 a.m. Temperature throughout did not exceed 98 2-5. The stimulants used were strych. gr. 1-40, adrenalin m.x. every two hours, chloral, grains 20, sod. bromide grains 30 by rectum when delirium was present. After death, the operation wound was opened and the abdomen examined carefully, and everything found to be in a perfectly normal condition. The peritoneum was free from fluid.

Not having permission to perform an autopsy no further examination was made. Examination of the urine made by Dr. Lynch on Sunday revealed nothing of special interest. However, on making a further examination myself on Monday, and looking particularly for acetone, I found this to be present by Legal's test. The train of symptoms corresponded so closely to those described by Bevan of Chicago in the "American Practice of Surgery," page 162, Vol. IV, that I have no doubt but in this case we have one of the so-called "Hepatic Toxæmias," due to chloroform narcosis. I am indebted to Dr. Lynch for assistance in working up this case with me.

AMBROISE PARE—MAN AND SURGEON.

BY

W. G. TURNER, M.D., M.R.C.S. (Eng.).

Mr. President and Gentlemen:—

The eighty years of Ambroise Paré's life, 1510 to 1590, were spent in times which have had one of the greatest influences on the world's history. The political aspect of Europe varied so frequently in that space of time and battles were being so constantly fought, that it certainly appears marvellous, in these relatively studious times of ours, that a military surgeon, who followed faithfully the fortunes of his native land, would have physical and mental energy to collaborate the crude surgery of his time and raise it above the mere superstition then prevalent.

At the time of his birth Louis XII reigned in France, and Henry VIII was King of England. During his lifetime the crown of France passed

from Louis XII to Francis I, and finally in succession to his three sons, Francis II, Charles IX and Henry III. Shortly before his death and after the ever memorable Siege of Paris, Henry IV of Navarre came to be in the ascendant.

By events in English history his life may be measured by the fact that he was born three years before Flodden Field, and that he died sixteen months after the destruction of the Armada. He was ten years of age when Luther burned the Pope's Bull, and forty-eight when France finally expelled England from her shores. The greatest wars of the times, however, were those against Germany, Italy and Spain, and the greatest enemy of France at that time was the Emperor Charles V. Conditions in France were steadily becoming worse and worse. On the one hand the steady growth of the Huguenot party, until it was fully organized under the Prince de Condé and Admiral Coligny, on the other, this influence for good was outbalanced by the pernicious intrigues of the Court. This last was dominated by the Queen Mother, Catherine de Medici, the Florentine, who quite controlled the actions of her three sons and the politics of the day. Such were the despotic and fickle rulers under whom Paré lived.

In 1562 began the long and disastrous Civil War between Catholic and Huguenot.

Among his contemporaries mention must be made of Ignatius Loyola, Luther and Erasmus, Calvin and Knox, Shakespeare and Rabelais, Raphael and Titian, Paræcelsus, Sylvius and Vesalius. Malgaïgne, in his able and learned introduction to the works of Paré, has stated that the way was cleared for his coming and all Europe seemed waiting and watching for the advent. A glance at the condition of surgery before he became the master is necessary at this point:

From the time of Celsus there was a period of constant decline. The European schools had set tradition and authority on high above honest observation and experiment; then also the Church forbade the shedding of blood to the physicians and kept surgery at the level of a low unorganized trade, placing thus almost a premium on Charlatanism. Guy de Chaulliac was the shining light in this period of decadence. He wrote his "Grande Chirurgie" in 1393, when physician to Pope Urban V, at Avignon. His advice to the surgeon may be well quoted: "Let the surgeon be well educated, skilful, ready and courteous; let him be bold in these things that are safe, fearful in those that are dangerous; avoiding all evil methods and practices. Let him be tender with the sick, honourable to men of his profession; wise in his predictions; just, sober, pitiful and merciful; not covetous and extortionate,

but rather let him take his wages in moderation according to his work and the wealth of his patient and the issue of the disease and his own worth."

John of Gaddesden and John Ardern fought the good fight to a lesser extent in England. These men served the cause of surgery in two ways: they made a stand against the Arabian School following the teaching of Averroes and Avicenna, "the prince of physicians"; and, secondly, they wrote or translated into their mother tongue, endeavouring to return past tradition to the pure teaching of Hippocrates. The introduction of printing provided the means of propagation. The new era was fast approaching. The writings of the Greek school had been spread abroad in the language of the various countries, largely through the activity of the Italian printing houses.

And now we come to that brilliant scholar of Italy, Antonio Benivieni, of Florence, 1440 to 1502. Educated at the famous School of Padua, he was a surgeon of repute, but he lives to posterity as the writer of the first work on pathological anatomy, "De Abditis Morborum Causis." This little book was collaborated after his death by his brother in Florence and published in 1507. By his brains and the energy of the following the free thought in medicine was finally established.

Paræcelsus, the great iconoclast, then came on the scene nearly a century after Guy de Chaulliac. A radical who was neither courteous, pitiful nor sober; he was the incarnation of the spirit of the free thought in medicine which broke the Arabian schools and struck at the solemn rubbish taught in the universities. The books of the former he publicly burned as an introduction to his lectures at Basel in 1526. Paræcelsus demanded, "Is not medicine a plausible pretext to extract money from the purses of imbeciles?" To correct this impression he visited every school of any learning throughout Europe: Spain, Portugal, England, Denmark, Poland, Prussia, Hungary and Transylvania. In fact, from every source where he thought some fact might be learned. From physicians and surgeons, alchemists and soothsayers, noble and humble, everywhere he sought "what were the best and most reliable remedies which were being and had been employed to cure diseased conditions." His chief works were combined in "Grande Chirurgie," three volumes appeared in 1536, and the remainder after his death in 1565. He also wrote a volume entitled "La Petit Chirurgie."

As to the condition of surgery in the fifteenth century in France, it was depicted by its rank in Paris. There the surgeons were combined under the College of St. Cosmo as a governing body. This body was not under any jurisdiction of a university and claimed great anti-

quity. In fact, some manuscripts gave authority to the statement that St. Louis of France founded this brotherhood in 1208, two years before his death. To further the same he gave them property on condition that they would gratuitously treat the sick poor of the district. The college gradually assumed importance, and in 1370 granted the Licentiate and Baccalaureat degrees, which up to that time had been entirely reserved to the university faculties; later was granted the title of Master of Surgery. The candidate for surgery was regularly apprenticed to a master of surgery who had been received at least four years. There he worked until he obtained his Baccalaureat after examination. He then took the oath of the profession and paid a franc to enter the brotherhood. Certain other statutes had to be observed: to the clerk he had to give two francs silver and a coat, then twelve golden crowns were paid to the magistrate for his license; to each of his examiners a good hat, double dyed in scarlet, as also gloves to match, and, finally, on his departure from the Hotel Dieu, a solemn dinner was required of him.

This surgical body attempted to control the whole surgical practice of Paris, and they admitted as few as possible into their ranks.

The Barber Surgeons as a class originated in the first half of the thirteenth century, and by the surgeon were given the right of bleeding and scarification. These being of a lower rank of surgery and yet wielding the knife, caused a certain amount of contempt at the hands of the physicians, so that in a short time the students of the faculties held as undignified most operations, except those for stone, hernia and cataract. Thus, gradually throughout Europe, general surgery fell into the hands of the Barber Surgeons. The St. Cosmo clique, however, through its royal edict became more or less fatal to the Barber Surgeons' practice in Paris, and this caused constant bickering, until 1390 the university took hold of the matter, especially the faculty of medicine, and readjusted conditions. Under Louis XI, Olivier le Dain, his barber and favourite, proved a dangerous adversary to the surgeons.

In 1494 the faculty in its teachings to the barber surgeons read certain authorities, chiefly Guy de Chaulliac, to the class in Latin, followed by explanatory notes in French. In addition anatomy was demonstrated, and in order that this could be carried out, judicial permission was granted to purchase cadavers from the various gibbets. The barber surgeons gained further favour with the faculty by observing the statutes of the same and refraining from the practice of medicine unless under the advice of a physician, and when choosing a consultant, giving preference always to one of the masters of the faculty. By this means

and owing to the bigoted policy of its order the power of the college of St. Cosmo was very much reduced, until in 1510 a rearrangement was made by the faculty and the two orders of surgery were stated definitely.

Outside the city of Paris the barber surgeons held the controlling hand in surgery. The chief orders were those of Montpelier, Tours, Rouen, Bordeaux and Toulouse. They became very aggressive, and so frequently usurped the rights of the physician, that in 1496 Louis XII, in a royal edict, limited their practice according to the laws of the university.

As to military surgery: In the army there was no surgical organization. According to the feudal system, each captain or noble recruited his men, and when he had the foresight to have a surgeon or surgeons in attendance, these were attached to his person and not necessarily to his troop. Even when the kings in the fifteenth century enlisted their armies no provision was made for a surgeon until 1405 this privilege was granted.

The surgeons of St. Cosmo would not leave their lucrative practice for the somewhat precarious existence in the field, and the barber surgeons then stepped in to fill the demand. Thus they gained in favour, an example of which might be cited in the case of Louis XI and his favourite, Olivier. Charles the Bold had no other surgeon in his domains except barber surgeons, and among his troops a barber surgeon was attached to each body of 800 men. This gave him twenty-two barber surgeons in an army of 20,000 soldiers.

Time and place do not permit of a review of the prevalence of the various forms of charlatanism which were then practised, especially in the country districts. The control of Catherine de Medici by her *parfumeur,* Réné, is but an example of this.

From the above brief context it will be observed that the surgical revival originated in Italy, and Germany followed suit, chiefly owing to the influence of Paræcelsus. The progress of wars brought benefits in the path of the conquerors; chief among these was the removal of the library of Florence by Charles VIII and that of Pavia by Francis I. The art of printing followed in the path of the libraries, and Paris, supplanting Italy, became the greatest publishing centre of the century.

And now appears on the scene Ambroise Paré, and as Malgaigne justly stated: the time was ripe and all the world was waiting for a practical and observant mind such as he possessed,

> " Thundering and bursting
> In torrents, in waves,
> Carolling and shouting

Over tombs, amid graves—
See! on the cumber'd plain
Clearing a stage,
Scattering the past about,
Comes the new age." (*Matthew Arnold.*)

Ambroise Paré was born in the little village of Bourg-Hirsent, close to Laval, in Maine, in the year 1510. His father was a "coffretier." He had a sister, Catherine, who married Gaspard Martin, a master barber surgeon of Paris a brother, Jehan, who was master barber surgeon at Vitré, in Brittany, and another brother who followed his father's trade. Gaspard Martin died after an amputation performed by Paré, and was one of the first cases where ligature was employed. The brother at Vitré is mentioned in Paré's works for his skill in detecting the sham diseases of professional beggars.

As far as can be learned, he went to the village school and received a smattering of Latin from the chaplain of one of the seigneurs of the locality. The stimulus to take up surgery was received when a surgeon, Laurence Colot, came down from Paris to perform an operation and Paré assisted him. Shortly afterwards he went to Paris to try his fortune. The masters under whom he served his apprenticeship are not known, nor is it certain whether he served all his time in Paris or not. From a skit published long after his death some idea of the lean years of Paré may be gleaned:

"The cock has scarce done crowing when the apprentice must arise, sweep and throw open the shop lest he lose the least payment that the tricks of the trade may bring him—some early bird to be shaved. From this time on till two o'clock there are fifty customers. He must comb the wigs, hang about the parlour or the staircase selling his stock, put folks hair in curl papers, cut it or singe it. Towards the evening, if the young man wishes to improve his mind he will take a book, but the dullness and weariness of learning which comes of his not being used to it soon brings him to sound sleep, with interruptions from the door bell warning him that some rustic wants his hair cut. Never did any one ask so much of a servant, never 'in the Islands' did a white man seek so greedily to get profit out of a black man as a master barber surgeon tries to make gain out of the bread and water he gives his apprentices. If it is not their afternoon off he will not let them leave the shop, not even go to lecture for fear of losing the worth of some beard which, perhaps, will not come after all. That is why, out of kindness, the professors give their lectures to these unhappy young men at four o'clock in the morning."

These lectures were delivered by physicians, not by surgeons, and in Latin, as the dignity of the university forbade the use of French, and the apprentice did not understand Latin. The value of the teaching of these pedants can readily be imagined.

In 1533 he was in Paris and the plague was raging there. Paris was a walled city of about 150,000 inhabitants; the criminal class was very numerous, quite 6,000 to 7,000, and the paupers numbered 8,000 to 9,000.

He worked at the Hotel Dieu, and while yet unqualified was given a resident appointment, "compagnon chirurgien." For three years he lived in the hospital and here his true work began. Sylvius was one of his teachers, and Vesalius and he just missed meeting as students by a year or two; afterwards meeting in consultation over the case of Henry II. It is certain that during these years he had abundance of work. He had charge of the patients, privilege of making dissections and post mortem examinations, and some opportunity of teaching the students. As an example to any interne he worked well with everybody in the hospital.

Full of practical knowledge he left his beloved hospital and faced the question of the future. From this time forward, for over thirty years, his life followed two separate channels: with the army in times of war, at Paris in the intervals of peace. As stated before, the army medical service was very crude, and in the train of the barber surgeons followed a host of dressers and quacks. Gunshot wounds were supposed to have special virulence and were treated with boiling oil until Paré after his first forty-eight hours of fighting saw the folly of it and stopped it. He attached himself to one great man and then another, until in 1552 he was appointed as one of the King's surgeons in ordinary. During this time his fees were varied and somewhat romantic: a cask of wine, 50 double ducats, a horse, a diamond, a collection of coins from the ranks; "honourable presents of great value," from the King, 300 crowns and the promise that he would never let him want, a diamond from the finger of a duchess, a bag of gold and various others.

He qualified as a master barber surgeon in 1541 at the age of 31, after passing the two required examinations.

Here, with his admission to the Barber Surgeons ends the first chapter of Ambroise Paré's life.

Next comes the "Journeys in Divers Places," written in Paris long after the events, and published in 1585, in the Fourth Edition of his collective works.

This publication was the outcome of an attack made upon him in 1580 by Etienne Gourmelen, Dean of the Faculty of Medicine. This last had published a book on surgery in which he criticized Paré's method of ligature, and argued his case by an idiotic appeal to authority and tradition. The attack had an everlasting merit, as Paré embodied his reply in "Apologie et Traicté contenant les voyages faicts en divers Lieux; par Ambroise Paré, de Laval, Conseiller et Premier Chirurgien du Roy."

He cites cases and appeals to experience, concluding the argument with the statement: "That he had had good results by this method, and he had not discovered it by sitting in a chair, but by years of Practical work in Paris, and with the Army." The publication is of value also, as showing the wonderful vigour and spirit, and how he could hit out when roused. These Journeys should be read fully to enjoy them, as they describe briefly the romance of his thirty years' service, from 1537 to 1569. The account opens with the Journey to Turin, and describes his introduction to military surgery. One of his first cases occurred during the storming of the town, and was a captain named Larat, who had received an arquebus shot in the right ankle, "I dressed him and God healed him." Paré's natural powers of observation were displayed within forty-eight hours of his introduction to military practice. It came about in this manner: Ever since the arquebuss was first used in warfare such gunshot wounds were regarded as having special virulence, according to the teaching of Jean de Vigo, and the treatment prescribed consisted in pouring boiling oil into the wound. The night after the first day's engagement Paré followed this method; but as the casualties were very numerous, he ran short of oil. To supply the deficiency he made a lotion composed of yolks of eggs, oil of roses, and turpentine. During the night he could not sleep owing to the worry that his default in cauterizing should be followed by bad results. Rising in the early morning, he proceeded to inspect his patients, and then, to his surprise, he found that those treated according to established methods were all doing badly, while those he had treated by his makeshift lotion were doing relatively very well. From that time onward, he followed his own method of treatment. While at Turin he heard of a famous lotion for the therapy of these wounds, but could not persuade the surgeon to give him the recipe. However, he was not to be baulked, and, at last, after two years, thanks to his persistency, supplemented by gifts and presents, it was obtained. This lotion was to boil in oil of lillies young whelps just born, and earthworms prepared with Venetian turpentine; but this puppy dog oil was discarded for

Aegyptiacum, a preparation of mercury, during the Rouen campaign. After this campaign was over, others were on the tapis, now in Brittany, now in Normandy, and while at Boulogne, he recites the case of the Duc de Guise, which rivals that of "the crow-bar man" of Boston. The Duke received a lance wound which entered over the right eye, towards the nose, and passed out to the other side between the ear and the back of the neck. It was so firmly wedged in that a smith's pincers and much strength had to be used to draw it out. "Yet, by the Grace of God he was healed." On this occasion Paré met the great Coligny. These various expeditions continued, in all of which Paré worked diligently. In the one against Chateau le Comte, Henry of Navarre was in command of 30,000 men, and at the end of the campaign, he mentioned the work of Paré very highly in despatches, which led to his being inscribed as Surgeon in Ordinary to the King. His rising reputation can be clearly seen in the campaign at Metz, 1552. There the Duc de Guise was besieged by 120,000 Burgundians, and was faring very badly, so badly, in fact, that he begged the King to send Paré to him in order that the surgery might be properly attended to. By bribery and stealth, Ambroise managed to get into the town. The siege was a desperate one, and the casualties very heavy, as may be judged by the fact that of the Emperor's force fully 20,000 died from wounds or disease. Some of the subjects of the frescoes in La Sorbonne and the Hotel de Ville in Paris were painted from scenes at this period, as also the one in the Ecole de Medicine recently destroyed by fire.

Then follows a graphic description of the siege of Metz and the desperate defence of the French under the gallant Duc de Guise. He is the same warrior who bade Paré place his foot on his face in order to get purchase enough to pull out the lance head which had wounded him as mentioned above. His conduct during the siege placed him in an enviable position, and he left the city mounted on a fine bay horse, a present from Guise himself, with his man riding behind him on guard over his valise of instruments, salves and dressings. The towns *en route* were filled with wounded, hospital gangrene was rife and fever was raging. He helped wherever he had the time and arrived back in Paris about the end of January, when he began his lectures on anatomy. By 1552 the second edition of his book on Gunshot Wounds was finished and dedicated to the King., but his work was interrupted by another campaign.

The story of campaigns must be cut short to follow his life in Paris. Let him be viewed now, not as an army surgeon, but as a citizen of Paris, a peaceful gentleman, whose face got to be as well known in the

streets as the face of the King himself, and much more welcome. In 1541 he was admitted as a master barber surgeon, and it is just half a century to the year of his death in 1590. The year of his admission he dined with Sylvius and discussed fully gunshot wounds. Sylvius urged him to write a book on the subject and this he fulfilled four years later. The traveller of to-day, after crossing the Seine to the Place St. Michel, may well study with interest the group of houses on the right just by the corner of Rue de l'Hirondelle, for there Paré lived and worked and collaborated his knowledge. The locality was well chosen as being near the Hotel Dieu and the Pré-aux-Clercs, where duels were frequent.

Within a few months he married Jehanne Mazelin, little being known of the circumstances which drew them together. His first two children died in infancy, the third, Catherine, survived the mother, who died in 1573. The family life, though so much disturbed by his many campaigns, was a happy and contented one. Though far from wars, he was quickly involved in the surgical strife waged so bitterly in Paris at this time. Mention has already been made of the triangular duel of the Faculty of Medicine, the St. Cosmo confraternity, or "Royal College of Surgeons," and the corporation of barber surgeons. He was admitted to the confraternity in 1554. In 1569 he had his controversy with Le Paulmier, a member of the Faculty, and in 1575, when he published the first edition of his collected works, began his conflict with the Faculty, which lasted almost to his death.

Paré was also a good man of business, as was shown by acquiring five houses in his immediate vicinity. These he filled with relatives. He also had a house in the Faubourg St. Germain and a property outside the city.

We have already mentioned how many kings Paré attended. In 1559 he was present in consultation over Henry II, who was wounded in a tournament by a pointless lance striking him over the eye. There was a great deal of "commotio," and he died on the eleventh day. The autopsy revealed an extensive hæmorrhage. Many consultants were in attendance, and the heads of four criminals were anatomized in the hopes of rendering some light on the case. Among those present was Vesalius, who had been brought from Brussels by Philip of Spain.

Francois II died within eighteen months of his father, and while attending him Paré showed his leanings towards the Huguenot cause. The King was suffering from an ear complaint at the time the Prince de Condé was on trial for his life. This had been brought about through the Guise ascendancy, combined with the influence of the Queen-mother,

and by these combined forces was condemned to be beheaded. When Coligny heard the news he consulted Paré, pretending that he was ill, and to his questions about the King's illness, Paré replied that there was grave danger, but he had not mentioned it yet for fear of doing harm at the Court. Coligny, in reply, called attention to the desperate position of Condé if he remained silent; whereupon Paré notified the court, and in this way saved Condé.

The dark days in France were becoming still more gloomy. On Friday, August 22nd, 1572, the massacre of St. Bartholomew took place. The King, Charles IX was almost beside himself, and yet even in his frenzy he was careful to keep Paré in safety, as also his old nurse. It is stated that on that day the King told him that "now everybody must turn Catholic." Paré coolly answered him: "By the light of God, Sire, I think you remember your promise never to command four things of me: To enter again into my mother's womb, to look after myself in battle, to leave you service, and to go to mass."

The following year, Jehanne, his wife, died at the age of fifty-three, and a few months later he married Jacqueline Rousselet. The affluent air of this second marriage contract is very different from the poverty of the first; more money, but less romance.

This second wife of Paré bore him five children, of whom three daughters survived him; one of these, Catherine, married an official named Hédelin and the famous Abbé d'Aubignac was one of the sons of this marriage.

The death of Charles IX, from phthisis, was on Whitsunday, May 30th, 1574, in his twenty-third year. He had been under Paré's care for pain and contracture of the arm after venesection, some time before 1569. He performed the autopsy and carried out the embalming in the presence of eight physicians and surgeons of the household. Any reader of the memoirs of Marguerite de Valois will readily judge of the intimacy of Paré with the Court and the high repute in which he was held by that fickle body.

In the following year began the long fight with the Faculty, which was waged over the publication of his collected works. It was a sort of Holy War for the deliverance of surgery from the bondage of medicine, and there is much amusement to be derived from the fatuous indignation and futile reprisals of his opponents after each succeeding defeat. These various editions came out in the following order: 1575, 1579, 1582 in Latin, and the last edition in 1585. This last is the most valuable as it contains his apologia and the Journeys. The Faculty offered no opposition to this last, thus acknowledging their final defeat

in regard to publishing, but the supremacy of the physician survived in regard to practice. Quite a furore existed at this period for mummy dust and unicorn's horn; and the use of these was made the subject of a violent attack by Paré, who introduced the story of his friend, Guy de La Fontaine, concerning an interview with an Alexandrian Jew dealer in the same, and the source of his supply.

He was still young at seventy-two, and when he wrote the Apologia and Journeys he was seventy-five. The internal condition of France during his last years was desperate. A fool King and a dissolute Court were at the head of the State, to which was added the bitter rivalry between the Royal Faction and that of the Guises, which last, however, made way for the increase in power of the third party, the Huguenots under Henry of Navarre. Paris itself was full of beggars and criminals, when Henry, after his victory at Ivry, laid siege to it, and the plague was raging. The people were dying like flies, and one day the Archbishop of Lyon, leader of the League, who was furious against peace, met Paré at the Place St. Michel, amidst a crowd of dead and dying; and there Paré arraigned him for the misery caused by him and his followers. In 1590 Henry entered Paris, and a few months later Paré died, after seeing just a glimpse of a better future in store for France.

His works: The Dedication and Preface are interesting reading. Save art and politics, the works contain every possible subject,—Anatomy and physiology, medicine, surgery, obstetrics, state medicine, pathology, pharmacy, natural history, demonology, and much else. The breadth, insight and humanity of his writings, his infinite care for trifles, his clear headed sense are remarkable. The reader may well note his clear directions for the making of a restorative draught, and the numerous devices adopted to give a plain diet and yet not a monotonous one. In bandaging, old, soft linen was employed, of certain lengths and widths, and without seams; and his dressings were clean and well washed. At the siege of Metz his four washerwomen were kept busy cleaning dressings by the fear of the whip. The rules for the comfort of patients show great care and insight. The discussion and treatment of the plague show most clearly his skill in practice. An example of brilliant surgical practice is cited in the case of the Marquis d'Auret, for whom he made his Journey into Flanders:—

In his own words he thus describes the "Status Præsens": "I found him in a high fever, his eyes deep sunken, with a moribund and yellowish face, his tongue dry and parched, and the whole body much wasted and lean; the voice low as if a man very near death; and I found his

thigh much inflamed, suppurgating and ulcerated, discharging a greenish and very offensive sanies. I probed it with a silver probe, wherewith I found a large cavity in the middle of the thigh, and others round the knee, sanious and cuniculate; also several scales of bone, some loose, others not. The leg was greatly swollen and imbued with a pituitous humor . . . . . and bent and drawn back. There was a large bedsore; he could rest neither day nor night; and had no appetite to eat, but very thirsty. I was told he often fell into a faintness of the heart, and sometimes as in epilepsy; and often he felt sick with such trembling he could not carry his hands to his mouth. Seeing and considering all these great complications, and the vital powers thus broken down, truly I was very sorry I had come to him, because it seemed to me there was little hope he would escape death."

And then followed the consultation with the other physicians and surgeons.

"Each said what he thought of the malady of the patient, and in conclusion they all held it hopeless. I told them them was still some hope, because he was young, and God and Nature sometimes do things which seem to physicians and surgeons impossible."

After this Paré went for a walk in the garden to think over the case, and after a time returned, and thus gives his opinion:

"To restore the warmth and nourishment of the body, general frictions must be made with hot cloths, above, below, to right, to left, and around, to draw the vital spirits from within outward..... For the bedsore, he must be put in a fresh, soft bed, with clean shirt and sheets..... Having discoursed of the causes and complications of his malady, I said we must cure them by their contraries, and must first ease the pain, making openings in the thigh to let out the matter..... Secondly, having regard to the great swelling and coldness of the limb, we must apply hot bricks round it, and sprinkle them with a decoction of nerval herbs in wine and vinegar, and wrap them in napkins; and to his feet an earthenware bottle filled with the decoction, corked, and wrapped in cloths. Then the thigh and the whole of the leg must be fomented of a decoction made of sage, rosemary, thyme, lavender, flowers of chamomile and melilot, red roses boiled in white wine, with a drying powder made of oak-ashes and a little vinegar and half a handful of salt..... Thirdly, we must apply to the bedsore a large plaster made of the desiccative red ointment and of Unguentum Comitissæ, equal parts, mixed together, to ease his pain and dry the ulcer; and he must have a little pillow of down, to keep all pressure off it.

And for the strengthening of his heart, we must apply over it a refrigerant of oil of water-lillies, ointment of roses, and a little soffron dissolved in rose-vinegar and treacle, spread on a piece of red cloth. For the syncope, from exhaustion of the natural forces, troubling the brain, he must have good nourishment, full of juices, as raw eggs, plums stewed in wine and sugar, broth of the meat of the great pot, whereof I have already spoken; the white meat of fowls, partridges' wings minced small, and other roast meats easy to digest, as veal, kid, pigeons, partridges, thrushes, and the like, with sauce of orange, verjuice, sorrel, sharp pomegranates; or he may have them boiled with good herbs, as lettuce, purslain, chicory, bugloss, marigold, and the like. At night he can take barley-water, with juice of sorrel and of water-lillies, or each two ounces, with four or five grains of opium, and the four cold seeds crushed of each half an ounce; which is a good nourishing remedy and will make him sleep. His bread is to be farm-house bread neither too stale nor too fresh. For the great pain in his head his hair must be cut, and his head rubbed with rose-vinegar just warm, and a double cloth steeped in it and put there; also a forehead cloth of oil of roses and water-lillies and poppies, and a little opium and rose-vinegar, with a little camphor, and changed from time to time. Moreover, we must allow him to smell flowers of henbane and water-lillies, bruised with vinegar and rose water, with a little camphor, all wrapped in a handkerchief, to be held some time to his nose..... And we must make artificial rain, pouring water from some high place into a chauldron, that he may hear the sound of it; by which means sleep shall be provoked on him. As for the contraction of his leg, there is hope of righting it when we have let out the pus and other humors pent up in the thigh, and have rubbed the whole knee with ointment of mallows, and oil of lillies, and a little eau-de-vie, and wrapped in black wool with the grease left in it; and if we put under the knee a feather pillow doubled, little by little we shall straighten the leg....."

After this comes his after treatment.

"The following days I made injections into the depths and cavities of the ulcers, of Ægyptiacum dissolved sometimes in eau-de-vie, other times in wine. I applied compresses to the bottom of the sinuous tracks, to cleanse and dry the soft, spongy flesh, and hollow leaden tents, that the sanies might always have a way out; and above them a large plaster of Diacalcitheos dissolved in wine. And I bandaged him so skilfully that he had no pain; and when the pain was gone the fever began at once to abate. Then I gave him wine to drink, moderatetly tempered with water, knowing it would restore and quicken the vital forces. And

all that we agreed in consultation was done in due time and order; and so soon as his pains and fever ceased, he began steadily to amend."

There were many drawbacks in Paris at that time: he had no proper knowledge of the circulation of the blood; no anæsthetics, no bacteriology, no knowledge of antiseptics. He had neither microscope, stethescope nor thermometer. But besides the lack of these essentials of the present day, other things stood between him and accurate pathology.

He had some belief of the influences that the stars had on the course of disease; that the plague was of divine origin; in spontaneous generation, as was the general belief of the time, and he judged this from the putrefactive changes occurring in wounds of princes as well as common soldiers. The terror of the powers of the air was a real one, and it is of interest to note that two hundred years later, in his own hospital, there was the same frightful mortality and the same fear of the air.

He had belief in devils, witchcraft and sorcery, and, on the other hand, the power of saints to cure disease, as well as the Royal touch to cure the King's evil. His fear of air infection was a very real one, both in surgery and the plague.

In practice some of his operations and methods were curiously modern. He understood and practised massage; he had quite a good method of producing local anæsthesia; he was opposed to immoderate bleeding; he knew the value of rest and silence for his patients. The Journey to Turin tells of his discovery of amputations through joints; and, later, he describes the use of the ligature in cases of amputation. He recommends good threads, two together, and a catch forceps, such as is now used by surgeons. This last was the result of direct observation of the ill effects and the frequency of secondary hæmorrhage following the use of the cautery. His publications were:

1. The method of treatment of wounds made by arquebuses and other firearms, and of those made by arrows, darts and the like, also the burns made by gunpowder.—1545.
2. A short compendium of the chief facts of anatomy, with the articulations of the bones.—1550.
3. A second edition of the book on gunshot wounds, with additions.—1551-2.
4. The method of curing wounds and fractures of the human head, with illustrations.—1561.
5. Universal anatomy of the human body.—1561.
6. Ten books of surgery.—1568.
7. Treatise on the plague, small-pox and measles; with a short account of leprosy.

8. Five books of surgery.—1572.
9. Two books of surgery.—1573.
10. Discourse on mummy, poison, unicorn and the plague.—1586.
11. Reply to an attack against his discourse on unicorn.—1584.

These have been translated into Latin, English, Dutch and German; but the collaboration of Malgaïgne in 1840 with his historical and critical introduction is a masterpiece of learning and labour. The reader of his works will note how frequently he refers to his sources of information, his graphic descriptions, his care of detail in every case.

As a man the reader will quickly form his own opinion. Having a healthy body, his illnesses were few and usually due to accidents: a broken leg, a viper's sting, attempted poisoning by sublimate, an attack of the plague make up the list. In living he was temperate, even though enjoying good wine on occasions.

In conclusion, though separated by two centuries, there is somewhat of a comparison between Ambroise Paré and John Hunter. They both made constant appeal to experience, they both were indefatigable in questioning and comparing notes. The note of John Hunter's maxim: "Don't think, try," constantly occurs in the works of the former. They both had experience in gunshot wounds, were great lovers of animals and their ways, and they spent their money lavishly when it came. To the men of the present day his methods are antiquated, his theories are wrong, and his books are sought only by the book fancier or librarian; and yet, for three centuries he kept his hold on men by force of character and integrity and by these alone.

MEDICINE IN CANADA.

BY

M. CHARLTON.

The first physicians of New France were not remarkable for any great brilliancy in the profession. but without doubt they possessed indomitable courage. Dr. Bouchard's name is remembered because he was the one who failed to diagnose the case of Jeanne Mance, who was then in charge of the Hotel Dïeu of Montreal, which had been established in 1643. But from the end of the seventeenth century the medical profession began to assume and make for itself a place in the new country. In 1690 there were practising at Quebec, Drs. Gervaïs, Beaudoin (physician to the Ursulines), Roussell (physician to the Hotel Dieu), Léger de la Grange, Dumain and Pierre du Roy, and lastly, and most noted of all, Nicolas Sarrazin. He was, without doubt, one of the most talented

men of the day. Born in France in 1659, he came to Canada immediately after receiving his degree, and here remained until his death in 1736. He was a noted botanist, and published several works on Natural History as well as Medicine. The pitcher plant was discovered by him and is named after him, *Sarracenia purpura*. Dr. Gauthier, of Quebec, was also an eminent botanist.

The name of Philippe Badelard, a famous surgeon, brings us to the period which precedes and follows the conquest of Canada by the English in 1759. The following account may, perhaps, be worthy of notice as it brings one into touch with the old City of Quebec. "Badelard was present at the Battle of the Plains of Abraham; seeing that the French troops to which he was attached were about to yield, he retired to the rear, where he found a wounded Highlander, named Fraser, who was bleeding abundantly. The surgeon first dressed the wounds, then gave himself up to Fraser as a prisoner of war. Both these men afterwards became firm friends.

It was in the house of Dr. Arnoux that Montcalm's wounds were dressed after he had been carried through the Gate of St. Louis.

The Coming of the English.—1759.

After the Conquest of Canada by General Wolfe in 1759 the history of the English medical profession began to establish itself. As the British settled in the country English doctors commenced to practice. The first to do so were the surgeons attached to the army, from which quite a number retired and settled in the cities and towns. But hardly had the country recovered from the Conquest (a little over twenty-five years) when the American Revolution broke out, and by 1790 about fifty thousand U. E. Loyalists had came over to Canada to settle, principally in what afterwards became Upper Canada. "The British Government, knowing that the Loyalists would not rest without some form of representative institution, and wishing to separate the new comers from the French settlers, passed in 1791, the Canada Act, by which it was provided that the country should be divided into two provinces, Upper and Lower Canada." It is a noticeable fact that in all this large number of refugees there were very few doctors, for the simple reason that although many of them were ardent Tories, yet they were not banished from the revolted Colonies as the rest of the people were. The few doctors who were banished settled in New Brunswick and Nova Scotia.

As the colonists began to settle in the western part of the country they experienced untold hardships for the want of medical attendance, as the only doctors within reach were those stationed with the garrisons

at Kingston, Niagara and Detroit. The Military Hospital at Kingston was used for a time by Sir John Johnston for the Indians, but was afterwards restored to the town for its original purpose.

In these early colonial days the history of medicine was beset with all the difficulties of a newly settled country, inhabited by an alien race, for Wolfe's Conquest gave to England a colony of 60,000 French settlers with French customs and French laws. As the country developed and the population grew, subjects of dispute became more frequent. Party spirit ran high and made its influence felt in the medical profession as in other professions; especially was this the case in the Province of Quebec.

Up to this time there were no medical colleges in the country. The young men who wished to enter the medical profession were articled as pupils to some of the leading physicians, subsequently going abroad to finish their education. The fees paid for being thus articled were from thirty to fifty pounds. A great deal of work was gone over in the four, or, as it sometimes happened, five years the student spent with his teacher. They read together for a certain number of hours, and for clinical work the student would accompany his teacher on his visits to his patients, and not infrequently was called upon to assist in some minor operations. The consulting rooms of these pioneer doctors often resembled a dispensary.*

COPY OF THE INDENTURE OF THE LATE PROFESSOR WM. WRIGHT:

* On this day of the Second of May, in the year of Our Lord one thousand eight hundred and forty-three. Before us, the undersigned Public Notaries, duly commissioned and sworn in and for part of the Province of Canada, heretofore constituting the Province of Lower Canada, residing in the City of Montreal, in the said Province.

Personally came and appeared, William Wright, Junior, aged fifteen, on the second day of July last, declared to have bound and engaged, and by these presents doth bind and engage the said William Wright, Junior, to and with James Crawford, of the said City of Montreal, Esquire, Doctor of Medicine, party hereto, and accepting the said William Wright as his covenant student and apprentice to the Study and Science of Medicine and Surgery for and during the term of five years, to be computed and reckoned on and from the 1st day of May Instant month, to all which the said William Wright, Junior, here also present, is perfectly consenting; these presents having been entered into with his will and voluntary accord, as testified by his signature hereto.

This stipulated and agreed that the said William Wright shall and will at all times during the continuation of his present engagement willingly serve the said James Crawford, obey his lawful commands, do not hurt or damage to him in any manner whatsoever, nor suffer nor see it done by others without giving information thereto to the said James Crawford; shall follow his directions, attend regularly every day during the said term the laboratory and all and every the particular and special duties which may from time to time be assigned to him by the said James Crawford. And finally, demean himself in all things as a good attentive and faithful apprentice and student ought to do.—

And the said James Crawford on his part doth hereby promise to teach and instruct, or cause the said William Wright to be well and sufficiently

taught and instructed in all and every matter and thing touching and concerning the Profession of a Doctor of Medicine and Surgeon as far as in him the said William Wright, and to that end shall allow him the use of such books from out of his Library as may be fit and proper, and also the use of such instruments and materials as he the said James Crawford may have and which shall be deemed requisite and necessary in the prosecution of his the said William Wright studies during the continuation of the present engagement, and for the execution of these presents the said parties have elected their domiciles as their ordinary places of residence above mentioned.

Done and Passed at the said City of Montreal, on the day, month and year first above, and before written and signed by the said parties hereto, with and in the presence of us said Notaries these presents having been first duly read.

Signed, W. WRIGHT.
" JS. CRAWFORD, M.D.
" WM. WRIGHT, JR.
Signed, F. X. LEFAIVRE. J. J. GIBB, N.P.

A true copy of the original hereof remaining of record in my office.
J. J. GIBB, N.P.

Those students who could not afford to go abroad went to the United States, where a number of colleges had sprung up. The study of medicine was introduced into Harvard as early as 1683, about forty-five years after its foundation. As for the French students, unless they understood the English language they could not avail themselves of the advantages offered by the American colleges. It is worthy of note that as far back as the year 1674 the French doctors had pupils articled; for instance, the case of Jean M. de Fonblanche, who was at that time practising surgery in Montreal, received as his apprentice, Paul Prud'homme, promising to teach him in the space of three years his art of surgery and all that appertained thereto.

FIRST MEDICAL ACT (1788).

Under French dominion the medical profession was under no particular regulations, but in 1788, thirty-eight years after the Conquest, under the administration of Lord Dorchester, it was judged opportune to legislate on the practice of medicine, in order to put a stop to the abuses which then overran the country. This Act of 1788 forbade any person to practise medicine or surgery within the Province of Quebec or Montreal without a license from "His Excellency the Governor, or the Commander-in-Chief of the Province, for the time being, which license shall be granted, but upon certificate of the person applying for the same, having been examined and appointed by such persons as the Governor or Commander-in-Chief, for the time being, may be appointed." Under this Act Boards of District Examiners were appointed yearly for each of the two districts of Quebec and Montreal. A very full account of the Boards which followed these early ones has been written by Dr. William Osler on "The Growth of the

Profession," published in the *Canada Medical and Surgical Journal*, Vol. 14, 1885. The great advantage of these boards can be realized when one considers the numerous quacks and so-called doctors who applied for licenses. Many of them had never been inside a medical college; others had no knowledge of Latin, while others, with a certain knowledge of medicine obtained from medical books, had never dissected.

There were now about this time quite a number of practitioners settled in the cities and large towns. These were mostly well educated men and able doctors. In the country places matters were deplorable, as the so-called doctors were utterly unfit for their duties. Many of them had been connected with the Hessian troops, where they had performed the minor duties of dressers and such like occupations.

Beginning of the Nineteenth Century—First English Hospital and Medical School.

At the close of the war of 1812-1815, English emigration, which had ceased during these years (in 1813 the number of vessels had fallen off to 9; in 1816 the number of vessels was 63) began once more. Owing to the crowded state of the ships and unsanitary conditions prevailing, the emigrants brought a deal of sickness with them, so that many persons died of the dreaded emigrant fever, similar in many of its features to the deadly plague. It was not until about 1849 that the Government awoke to the great necessity of having inspectors appointed to see after these emigrant ships. Their duties were to limit the number of passengers and to inspect the provisions, water, conveniences for cooking and ventilation, and also to have a surgeon on board. These surgeons were to be taken from the Navy Medical Department, the period of service on such ships to count as service on their own ships. Although the Passengers' Act was passed it was not at all times carried out. Sometimes as many as forty deaths would occur from typhus fever on a ship containing five hundred emigrants, and the conditions on board were simply awful. The medical superintendence was very defective. Occasionally the so-called surgeon was but a student with very little knowledge of medicine. On one ship which had just arrived at Quebec it was found that several of the passengers had their limbs bandaged for supposed fracture; the Captain's arm was in a sling, but on examination there was found to be nothing the matter with it beyond a slight bruise. The surgeon being called to explain, said, "I assure you the tibia and fibula are broken" ! !

Montreal General Hospital.

Quebec had its marine and emigrant hospital, but many of the emigrants came straight to Montreal, and, consequently, the need was felt

of some suitable place where the sick would be promptly attended to. Up to this time the English residents of Montreal had no hospital of their own. The Hotel Dieu was, like most of these early hospitals, rather the abode of the poor and incurable. In this critical state of affairs, when every ship load brought out those who required immediate attention but had no hospital to receive them, Dr. T. P. Blackwood and several other well known medical men of the city came forward and offered their professional services if a house was provided for them. This was immediately done, and a small house of four rooms procured in the St. Joseph suburbs, chiefly through the efforts of a society called "The Female Benevolent Society." This society afterwards undertook to receive convalescents from the hospital, when room had to be made for others. The place was called "The House of Recovery." This house soon proved too small, and a larger house was taken on Craig Street. It consisted of three wards and held about twenty-four patients. All the expense of moving and rent was covered by a sum of money raised by a subscription list sent round the city. The place was ready for patients in May, 1819, when the name, House of Recovery, was changed to the Montreal General Hospital. From these small beginnings grew the now famous Montreal General Hospital. It was, in these first years of its existence, an experiment. The public anxiously awaited results. At the end of the second year, after moving into the larger house, the results were so gratifying that the public felt that it must be conducted on a still larger scale. It was now no longer an experiment; it had proved its usefulness, and the decision was that it should become a permanent institution. Subscriptions began to come in more freely, and in August, 1820, through the generosity of three citizens, the Hon. John Richardson, the Hon. William McGillivray and Samuel Gerrard, Esquire, ground was purchased in the St. Lawrence Suburb. The foundation-stone was laid with great Masonic ceremonies in June, 1821, by the celebrated Sir John Johnston who, at the time of the American Revolution, brought out a large body of U. E. Loyalists from the Mohawk Valley and settled in Upper Canada. One of his descendants, bearing the same title, is now residing in Montreal. In less than a year the new building was ready for use. In May, 1822, the hospital was opened, free of all debt, thanks to the ready response of the citizens.

In the library is the original manuscript of the first report of the hospital showing the different diseases which were treated from May 1st, 1822 to May 1st, 1823. The list shows that 412 cases were treated with 36 deaths during the year. In this report the nurses are instructed to be clean and decently clad.

The first great step in the progress of medicine in Canada was taken by the establishment of this hospital. By its inception, the medical college became possible, for the idea of giving a systemized course of lectures originated with the doctors composing the medical board of the hospital. About this time Dr. Stevenson and Dr. Holmes gave a course of lectures; Dr. Stevenson on Anatomy, Physiology and Surgery, at the hospital, and Dr. Holmes on Chemistry, at the home of Dr. Shakel, who also lectured on Natural Philosophy. Previous to this, in 1817, we find that Andrew Smythe gave a course of lectures on Anatomy and Surgery, at his house on the corner of St. Gabriel Street. These lectures were illustrated by a series of anatomical preparations. In 1819 Dr. Sleigh lectured on Anatomy, Surgery and the Practice of Physic.

Montreal Medical Institution.

Some months later the officers of the medical board of the hospital met and considered the question of starting a regular medical school, formed along the lines of the Edinburgh Medical School, which was then coming into great notice. His Excellency, the Earl of Dalhousie, gave his sanction to the plan which the medical board of the hospital had drawn up for his approval, appointing at the same time the medical officers of the board of the hospital to be examiners of licenses for the District of Montreal.

No time was lost by this little band of pioneers in medicine in carrying out the second great undertaking, and the first organized lectures were given in 1823, at No. 20 Little St. James Street. It was not until 1824, however, that the new school was really opened under the name of the Montreal Medical Institution. The founding of this school was watched with great interest by not only those in Montreal, but in Upper Canada as well. The young men realized that now they would be able to get their medical education in their own country, and in course of time many of the Upper Canada men became graduates of the McGill Medical Faculty. The first regular session of 1824-5 was attended by twenty-five students; unfortunately the records of the previous session are not available. The staff of this new school was practically the same as that of the Montreal General Hospital—Drs. Holmes, Caldwell, Stevenson and Robertson.

Dr. Stevenson was one of the most enthusiastic of those concerned in these two great enterprises. He graduated at Edinburgh in 1820, about the same time as Dr. Holmes; Dr. Robertson and Dr. Caldwell were retired surgeons of the British Army, and were the leading physicians of the day. Shortly after the founding of the medical school

Dr. Holmes, who had taken an active part in both these institutions, now became one of the most active in starting a Medical library.

The First Medical Library.

"We have now a hospital and school, let us at once begin forming a library." Such were the words uttered by Dr. Holmes at a meeting of the doctors of the school. Then and there it was decided that a collection of books and journals should be at once started, and that Dr. Holmes be appointed Secretary and Librarian. Dr. Holmes entered into this undertaking with his untiring energy and zeal for any cause which would advance medical education in Canada, and it was an undertaking when it is considered how scarce at that time were medical books and journals. A room was set apart by Dr. Holmes behind his consulting office in his house (which stood where the Molson's Bank now is), and here was the beginning of the library.

The First Medical Journal.

Up to this time no Canadian medical journal had been published, though in the United States there were several, the earliest being published about 1798. The first Canadian journal was published in 1826, and to the City of Quebec is the honour due for this first venture in Canadian Medical journalism. It was called "Le journal de Médicine de Québec," and ran from January, 1826, to October, 1827. The journal had two title pages, and was published in both languages. Copies of this journal are now exceedingly rare, but we are fortunate in having a very good specimen in our library. Owing to the death of Dr. Tessier, the editor, shortly after the first volume was printed, no further issue was printed. One of the most enthusiastic promoters of this journal was Dr. Blanchet, he it was who prepared the number of meteorological charts which this journal contains. At that time great importance was attached to the nature of the atmosphere.

Dr. Blanchet was one of the first Canadian doctors to graduate in the United States, and his name must ever rank one of the first in the medical history of Quebec. The basis of medical teaching in Quebec was started by him when he gave private courses in chemistry in the Emigrants' Hospital. These lectures were largely attended, many coming from great distances to hear them. Dr. Whitelaw at the same time was giving lectures in the old theatre.

Previous to this, in 1823, Dr. A. Von Iffland had, with Dr. Blanchet and several others, established the Quebec Dispensary, and had given a course of lectures on Surgery, Medicine, Anatomy and Physiology. The

Dispensary, after two years, was obliged to close because of the need of funds. Owing to the urgent request of the students and several of the doctors, Dr. Von Iffland continued to give his lectures on Anatomy for two years longer. The recent war of 1812 had only too plainly shown the great want of knowledge in this important subject of the surgeons who had attended the wounded. Yet Dr. Von Iffland was not allowed to procure subjects for dissection without having his life harassed and even threatened by an irate population, and finally he had to flee from Quebec and take refuge elsewhere. He says, "Not only were my private apartments ransacked, myself held in durance for some days, but nearly the whole of my anatomical preparations were ordered to be interred, under the surveillance of a military (27th regiment) and civil escort! And, what must appear most surprising, is, that the very *subject,* that gave rise to so scandalous a proceeding, had been, but a few days before, one upon whom an inquest had been held by that very coroner. He had been found lying dead at Point Levis, a stranger, totally unknown to everyone, but, through some connivance or other, had found his way to the dissecting room."

(To be continued.)

DUODENAL ULCER; ITS DIAGNOSIS AND SURGICAL TREATMENT.

BY

A. E. GARROW, M.D., Montreal.

The surgical treatment of duodenal ulcer is no longer limited to the management of two of its most fatal complications, viz., perforation and hæmorrhage.

A very cursory review of the ever increasing literature of the last four years, will hardly fail to impress you with the view that this disease, like appendicitis, is best dealt with by surgical means. Indeed, the knowledge that it is a very frequent cause of abdominal disturbance, has been acquired as the result of systematic examination of the viscera in operations performed for supposed gall bladder, and stomach disease.:

The most recent statistics inform us that it is as common as gastric ulcer, and many of us have been reminded of it as a possible cause of peritonitis, when we have opened the abdomen for appendectomy, to find a normal appendix.

Secondary anæmias of unexplained origin may owe their existence to a latent duodenal ulcer with unrecognized melæna.

Read before the Ontario Medical Association, Hamilton, May 27th, 1908.

Surgical measures directed to the relief of gall bladder complications have failed to relieve the abdominal symptoms, until a more careful and subsequent exploration revealed an overlooked duodenal lesion, which yielded promptly to a gastro-jejunostomy, and such mistakes have not happened to the tyro in surgery.

Medical treatment and suitable dieting, carefully observed, will undoubtedly cure successive recurrences of the indurated duodenal ulcer, but it cannot prevent the subsequent narrowing of the canal and the associated dilatation of the stomach, nor does it prevent the disabling adhesions to contiguous organs, which may cause life-long misery, ending in invalidism.

Surgical treatment, on the other hand, can show indubitable and satisfactory evidence that it can deal more promptly and more safely—and this, I say, advisedly—with peptic ulcer in this region, than can any form of medical treatment yet devised.

Let me say right here that my remarks refer only to chronic indurating ulcers, and not to recent erosions, which, like similar gastric lesions, yield readily as a rule to medical treatment.

Surgical treatment shows a larger percentage of permanent cures and improvement. It more assuredly prevents hæmorrhage and perforation, acute and chronic, as well as obstructive symptoms. Disabling adhesions can often be dealt with, and, lastly, and by no means the least, the patient is able to enjoy the pleasures of his own table without incurring the penalty of possible recurrence of dyspeptic symptoms, when he strays from a strict dietary.

The clinical history of duodenal ulceration, in many cases, is possibly less clear than is that of gastric ulcer. But as our experience increases, and in proportion to the care we exercise in establishing the sequence of symptoms so shall our mistakes diminish.

From personal experience in a limited number of cases chronic duodenal ulceration may be conveniently classified as follows:—

1. Those which give an unmistakable symptom complex of this disease.
2. Those giving an atypical history strongly suggestive of gall-stones or cholecystitis.
3. Cases which are latent until acute or chronic perforation, hæmatemesis, or melæna occur, or where symptoms of motor disturbance manifest themselves.

In the typical cases there is the so-called hunger-pain coming on several hours after eating, relieved by taking food or alkalies.— as a rule, most severe when there is hyperchlorhydria, rarely radiating to any extent—

described as acute and burning, sometimes colicky, and referred to the right of the middle line—very rarely to the back.

Vomiting, rarely excessive in the early stages, relieves the pain, but may be an unimportant symptom.

Flatulence usually in direct proportion to the severity of the pain.

Tenderness, and sometimes rigidity, to the right of the mid line.

So long as the motor function is good the appetite is keen and the patient is well nourished and even florid when hæmorrhage is absent.

Emaciation and anæmia are dependent upon pyloric spasm, obstruction and to frank or occult hæmorrhages.

Dilation of the stomach and the presence of a tumour-like mass are symptoms of a later stage.

Constipation is the rule at least in all my cases.

A history of biliary colic with jaundice chills and fever were present in two of my series.

Hæmatemesis, but especially melæna, occur in a large number of cases, and when duodenal ulcer is suspected, routine examination of the stools for occult blood is necessary.

Intermittency of attacks is the rule, the intervals of freedom from symptoms varying from months to years. In two cases attacks lasted but a day or two and were strongly suggestive of biliary colic. With such a history, even in the presence of a tumour with marked gastric dilatation, emaciation and anæmia, operation is not contraindicated, since primary carcinoma of the duodenum is rare.

The diagnosis of cases of the second class is attended with more difficulty. Last year, at the meeting of the Canadian Medical Association, I reported four cases where a diagnosis of cholelithiasis had been made not alone by the writer, but by men of wide experience.

Two were operated on for gall-stones—both bad attacks, simulating hepatic colic—both had jaundice, one had chills and fever. Both had a history of such attacks for fifteen to eighteen years respectively, with varying periods of complete relief from digestive disturbances.

Of the other two, one had a sharp attack of melæna, which enabled us to correct our diagnosis just prior to operation, and in the last case a careful review of the clinical history in the light of previous mistakes made a diagnosis of duodenal ulcer almost certain.

The differential diagnosis of duodenal ulcer from ulcer at or near the pylorus is practically impossible, in fact, the two conditions may be associated.

As a rule, pain, flatulence and vomiting are more intense in duodenal than in gastric ulceration. As already stated, my chief difficulty has been with the second class.

The pain of gall-stones is more severe,—more sudden in its onset, radiates wider, and is not relieved by food, alkalies, or vomiting, and the tenderness lies further to the right, and in the intervals there is, as a rule, more perfect relief of all digestive disturbances.

A history of acidity or hyperchlorhydria is wanting.

The presence of jaundice, chills, and fever may speak for either condition, in ulcer due to involvement of the papilla or to an ascending cholangitis.

It may be impossible to distinguish between an acute infective cholecystitis and perforation of a duodenal ulcer.

Perforation may be the first and only symptom of duodenal ulcer. It is a very frequent complication of all duodenal ulcers, and is more fatal than gastric perforation. The majority, like the ulcers, are in the first portion and on the anterior wall, and the perforation is more apt to be acute than in gastric ulcer. In the acute form, the onset of pain is sudden and severe, doubling the patient up, and followed, as a rule, by faintness and marked symptoms of shock. The initial symptoms, however, vary in degree, and are often followed by a longer or shorter period of relief, only to give rise to a second recrudencence of the symptoms, and it is at this period that mistakes for appendicitis occur, since the duodenal contents are directed down to the iliac fossa by the arrangement of the transverse meso colon and the ascending colon. The subsequent picture of the case is that of a spreading peritonitis.

The diagnosis will rest on the previous history, the sudden onset of abdominal pain, the early local tenderness and rigidity, possibly hæmatemesis and the development of a spreading peritonitis chiefly to the right side, and, last of all, to the left. In each of my cases a well marked leucocytosis was present.

In some cases premonitory symptoms of leakage precede the frank perforation.

Perforation on the upper or posterior wall—protected by adhesions, may give rise to subdiaphragmatic-abscess occupying the various connective tissue and peritoneal areas seen in purulent invasion of this region, a localized abscess may rupture subsequently into contiguous viscera or into the pleura or lung.

Like perforation, hæmatemesis or melæna may be the first symptom of duodenal ulceration. Repeated examination of the stools during an "attack" will show blood in a majority of cases. In several of my cases with a history of ulceration an attack of faintness was followed by a copious passage of blood.

Severe and fatal hæmorrhage is most apt to occur in ulcers situated on the posterior and inner wall of the duodenum. Robson has noted that the anterior ulcers bleed but little. Moderate hæmorrhages are usually recognized in the stools as melæna, and in the fulminating variety proving rapidly fatal, hæmatemesis not infrequently coexists.

Anatomically, the bleeding may be from the aorta,— hepatic,— gastro-duodenal, superior pancreatico-duodenal, and the pyloric,—pancreatica magna,— right gastro epiploica, the portal vein and the superior mesenteric vein. Duodenal ulceration needs surgical treatment for

1. Perforation.
2. Hæmorrhage.
3. Gastric, gall-bladder, liver, and pancreatic, complications.
4. The relief of pain and other dyspeptic symptoms not yielding to medical treatment.

Perforation.—A recognized perforation demands immediate operation. First, a row of hæmostatic sutures, then one of Lembert sutures placed parallel to the rent and fortified when necessary by an omental flap. Cleanse the site of soiling and, if needed, use a small Mikulicz drain. Pelvic drainage is necessary when extensive soiling has occurred, and in the presence of a spreading peritonitis. Gastro-jejunostomy should be performed when the patient's condition warrants it, especially in the presence of much induration with gastric dilatation. Pylorectomy is not justifiable under such circumstances. In desperate cases a short operation for closing the rent and draining the pelvis, with the patient in Fowler's position and the judicious use of rectal and intravenous salines will, in my experience, give the best results.

Hæmorrhage.—Robson takes no chances on a second hæmorrhage when the first is at all profuse. Both he and Moynihan perform gastro-jejunostomy, leaving the ulcer intact, and have been satisfied with the results. Others advise exposing the ulcer and ligating the bleeding point, this may or may not be a difficult procedure, depending upon the pathological conditions present. Personally, I have followed Robson's advice in three cases, with very profuse hæmorrhages, and in each with satisfactory results.

Excision of the ulcer and closing of the area with infolding sutures, combined with gastro-jejunostomy have been recommended by Moynihan. Gastric dilatation may be dealt with successfully by one of several methods. At present there seems to be a tendency on the part of surgeons whenever possible, to restore the function of the duodenal route and this, by either pyloroplasty, or by Finney's gastro-duodenostomy. The English surgeons practice and preach gastro-jejunostomy in spite

of experimental proof that the gastric contents escape largely through the patent pylorus, and give as a reason that the ulcer heals rapidly when the acid contents escape through the new anastomotic opening; rather paradoxical, is it not? In many old chronic indurated ulcers, with great thickening and numerous adhesions, gastro-jejunostomy is the operation of choice. In small ulcers with little thickening and few adhesions pyloroplasty or gastro-duodenostomy.

Possibly, the operation of choice in the future will be pylorectomy combined with gastro-jejunostomy and the closing of the duodenum and stomach openings, especially, if subsequent experience will show a tendency to malignant involvement of cicatricial tissue. So far as we now know this is very rare.

In all cases periduodenal adhesions to the gall bladder, stomach, and colon, should be severed and the ligated stumps buried beneath a purse-string suture.

An associated cholecystitis or cholangitis, but especially evidences of chronic interstitial pancreatitis involving the head, demands suitable treatment, either by establishing a temporary biliary fistula, or else by performing cholecyst-enterostomy.

For the relief of pain, and for the "cure" of duodenal ulceration, independent of the foregoing conditions, surgeons practice either gastro-jejunostomy, pyloroplasty or gastro-duodenostomy. The indications for and the selection of the method of choice have been already indicated in gastrectasia.

During the last two years and a half I have operated on nineteen cases of duodenal ulceration. Of four cases for acute perforation, two lived and two died. The successful cases were operated on within twelve hours of the onset of symptoms, and in addition to closing the gastro-jejunostomy was performed. The fatal cases showed the clinical picture of extensive generalized peritonitis, subnormal temperature and adynamic ileus. In each instance the rent was sutured and the pelvis drained without irrigation. During operation, intravenous saline transfusion was practised, and though the patients seemed to leave the operating table in a better condition, both died within eighteen hours of operation.

On three cases for profuse and repeated hæmorrhages by performing gastro-jejunostomy. All recovered, the last case operated on ten days ago gave me some anxiety owing to hæmatemesis occurring in small quantities for eighteen hours.

On four cases for marked dilatation of the stomach, one having a tumour-like mass suggesting cancer and operated on fourteen months

ago, is still gaining in weight. One with marked cicatricial contraction and narrowing following trauma, and operated on again in May of this year for fulminating gangrenous appendicitis. In each case gastro-jejunostomy was done with marked relief to the symptoms. All recovered.

On eight cases for chronic ulcer not yielding to medical treatment, seven by gastro-jejunostomy and one by pyloroplasty. All recovered, and, with two exceptions, with marked relief to symptoms indeed, I may say, with a cure.

In one, a young man of markedly neurotic type, an exploratory operation was done to confirm the diagnosis. A small indurated area with numerous adhesions was found. Improvement followed, but within a month some of the symptoms recurred.

In the other case, a middle aged woman with moderate dilatation which had been very marked a week or two before, but was relieved by gastric lavage, there was extensive infiltration with adhesions and enlargement of the head of the pancreas. Prompt relief followed for several weeks and then pain and vomiting returned at intervals. Lately, there has been a period of marked improvement. She is still under observation in the hospital. At first I thought of jejunal ulcer, but lately I am inclined to think there is some mechanical obstruction. She has refused to let us pass a stomach tube, and up to the present the vomited material has been scanty.

Fifty per cent. of the perforation cases died. There was no death from hæmorrhage, dilatation, or for the surgical treatment of chronic ulceration.

Messrs. W. B. Saunders Company, medical publishers, of Philadelphia and London, announce for publication, before June 30th, a list of books of unusual interest to the profession. We call attention to the following:—

Bandler's Medical Gynæcology—treating exclusively of the medical side of this question.

Bonney's Tuberculosis.

Volume II, Kelly and Noble's Gynæcology and Abdominal Surgery.

Volume IV, Keen's Surgery.

Gant's Constipation and Intestinal Obstruction.

Schamberg's Diseases of the Skin and the Eruptive Fevers.

John C. DaCosta, Jr.'s Physical Diagnosis.

Todd's Clinical Diagnosis.

Camac's Epoch-Making Contributions in Medicine and Surgery.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE.

The last few months have seen the production in England of three journals of a quality superior to anything previously published in their respective lines. We refer to the admirable quarterly *Science Progress,* to the equally admirable *Medical Quarterly,* and to the *Proceedings of the Royal Society of Medicine.* All three are indispensable to those wishful to keep level with the progress of medical science—all three afford reading matter of high quality and interest—the only pity being that there is so much of it! The last of the three differs from the other two and deserves special mention. Let the reader realize that for a sum of ten dollars he can—as a non-resident member of one of the sections of the Royal Society of Medicine—add each year to his library the (London) Clinical Society's Transactions, the Transactions of the Medico-Chirurgical Society, of the Epidemiological Society of Great Britain, the Obstetrical and Gynæcological Society, the Dermatological, the Pathological Society, the Laryngological Society, and half a dozen more of the well known special medical societies having their head-quarters in London. When, as the result of long and careful negotiations, the majority of the medical societies in London combined together to form the Royal Society of Medicine, it was determined to fuse together all the separate Transactions of these societies, which became sections of the main society, and to publish those not yearly, (when much that

had been given during the twelve months might be, if not out of date at least out of interest) but monthly, the transactions of each society being given separate pagination, so that those interested in the work of a particular society or societies, and not interested in that of the others, might, at the end of the year, bind those particular transactions separately. The number before us—that for March of this year—is made up of 262 large pages of clear, large type—a pleasure to read—contributed by eleven of the constituent bodies. There is here matter to please all tastes, abundant short reports of rare cases—a monograph on coxa vara, contributed by Tubby, to the surgical section; a critique on Acidosis, by Leathes, contributed to the pathological section; the beginning of a philosophical address on the therapeutics of diet, given to the therapeutical section; Dr. Lewis Jones' paper on ionic medication, delivered before the electro-therapeutical section. These are but some of the chief features. Altogether, it is an extraordinary mass of good material.

A COUNSEL OF PERFECTION.

At the annual convention of the Ontario Medical Association, which was held in Hamilton, on May 26th to May 28th, a resolution was passed in the following terms:—"That the Ontario Medical Association desires to give expression to its hearty approval of the proposition of the Government of Ontario to establish psychiatric clinics to work in conjunction with the hospitals for insane in the province; that the association also respectfully requests the Government to have a lunacy board of alienists, who alone shall give expert evidence in courts of law as to sanity or insanity, and also institute reforms in the civil service whereby promotion for merit alone shall take place, and especially to make a rule that no one shall be appointed superintendent of any hospital for insane until he has had some years of training in the service." In view of the conduct of the Ontario Government, to which attention has frequently been called, in appointing men to hospital positions, whose attainments have been political rather than scientific, this resolution would appear to be a counsel of perfection rather than the expression of a hope which may reasonably be fulfilled.

THE FEUD IN HALIFAX.

The disagreement in the profession in Halifax is becoming more acute. The matter is no longer confined within the ranks. It has extended to the public, and is now under full discussion in the news-

papers. The *Eastern Chronicle,* which is published in New Glasgow, prints an editorial on April 17th, in which the facts are fully set forth. The whole affair is discreditable to the profession, none of it more so than the letter to another newspaper from Dr. Hawkins, which we reproduce. The charge, and the method of making it, against Dr. Mackay, is shocking and contrary to all the amenities of the profession which have existed for 2500 years.

We think it proper to print an account of the controversy as an example of what we are constrained to consider as unprofessional conduct. We introduce this subject with regret, but we quote the following paragraphs to explain to our readers the basis upon which we declare that this must stop. We do not know the rights of the question that gave rise to the discussion, but we do know that this is not the way in which it should be treated; by bringing it before the public in this way, the members of the profession concerned have let it to some extent out of their own hands, and we, representing in this the medical profession of Canada declare that they have exceeded their own rights and have infringed upon ours in subjecting us to the indignity of a public spectacle such as this. We believe that every reader of these paragraphs quoted will endorse us in our statement that the medical profession of Canada *commands* that this making public of private affairs instantly cease. The editorial reads:—

"Tuesday's Halifax newspapers gave an account of a lurid debate in the House of Assembly on the management of the Provincial Hospital. What led up to the debate was that Chief Justice Weatherbe has a son who studied for a doctor in Halifax. Then he went to London and took a post-graduate course. His father, with a father's partiality for a son, and in this instance, a father who seems to think that the province is his personal estate which owes his family a living, recalled him (the son) from London with the intention of putting him on the medical board of the Victoria General Hospital.

"As is known to the people of Nova Scotia, the doctors of Halifax have generally always been quarrelling over the affairs of the Victoria Hospital. This grew so hot and unbearable that the Government took over the management of the institution and now appoint the medical board. To fill the vacancy the Chief Justice wanted for his son, the Government appointed Dr. Hawkins, who has practiced in Halifax for twenty-three years. This appointment riled the Chief Justice, and he wrote Premier Murray a long and bitter letter, and one or two short ones, filled with vague allusions to mal-practices in the hospital, and pointed references to the superiority of his son. The Chief Justice, should

know that veiled charges are indiscreet and improper; that if he had a charge to make, it should be clear and definite. In this regard the letters are disappointing; indeed, pretty nearly disgusting.

"About the son, Dr. Weatherbe, we know nothing only that he has been a bright student, and apparently has been trying to learn how to do things. But whether he can do medical or surgical things better than any other doctor, or better than Dr. Hawkins, who is a bright man with a long practice, is yet to be shown. We have stated more than once that bright and clever graduates of colleges seem to be imbued with the belief that the toiling masses must provide them with fat offices just as soon as they are through college. As a rule, instead of going to work at whatever they can find to do, as an ordinary college graduate is compelled to do, they become a public charge and must at once be elevated over members of the same profession, who have borne the burden and heat of the day and who, by application and faithful service, have earned the right to some little honour, or there will be a great clamour. Just now Dr. Weatherbe is one of these and is backed up by a prominent, but indiscreet father.

"On Monday, Dr. McMillan, of Inverness, brought the subject up in the House of Assembly. Mr. Tanner was, of course, drawn into the debate, and read all the letters written by the Chief Justice about the college and about his son. On the side of the Government, the Premier, Commission of Mines and Works, and Drs. Bisset and Kendall defended. The two members of government merely, but ably, defended their actions. The doctors poured shot and shell into the aspirations of other doctors and into the Weatherbe family. However, the details we will leave to our Halifax correspondent.

"Regarding the management of Victoria Hospital it may not be perfect. What public institution, where two parties are struggling to keep on top, is perfectly managed? On the whole, being run partly as a political institution, this hospital is well managed. Anyway, the Government is responsible, and that the Government does its best is shown by several of its bitterest political opponents being on the medical board of the Hospital. In addition, Dr. John Stewart, one of the leading doctors of the Province, was offered a place on the medical board, but declined to serve. Among the members of the medical board is Dr. N. E. McKay, an able and skilful surgeon, but a man who is inflicted with an infirmity that leads him to look with contempt on any other surgeon who can perform operations probably as well as he can. Dr. McKay has generally been found in the midst of every row, and they are legion, that has taken place in that hospital during many years.

He may be always right, but his domineering temper puts him often in the wrong.

"It is well known that operations are being constantly performed in all hospitals that do not lead to the recovery of the patient. It may be that some of these have not been performed by as skilful a surgeon as others. It may be, too, that some patients would die even if operated on by the most renowned of surgeons. Indeed, it may as well be admitted, that the skill of the most renowned physicians and surgeons cannot always triumph over a malady, even when the cause is removed by the knife. As we understand the work of the Victoria General Hospital, one lot of doctors or surgeons have always been ready to condemn the work of another lot. There has been too much of that condemnation. It is unreasonable to believe that, where two or three, or more, surgeons decide after due deliberation on a serious operation as being necessary, or the only means to save a person's life, these surgeons do not exercise all the precaution known to their school. To believe that they do not is to believe that they are regardless of human life,—this we absolutely refuse to believe. In Halifax such accusations from one coterie and from another have been rife. To add to the confusion, fathers and families high in official life, have striven to get their sons on the hospital board over the heads of others that may reasonably claim a turn. The latest of these is the one under discussion, and it may be said to be the more provoking because the father is no less a personage that Sir Robert Weatherbe, Chief Justice of the Province. In our opinion, it would be far more becoming for this great man, who has been so highly honoured by country and King, to say to his son,—'You have had the best education that money and influence could provide you with. But, my son, in Canada there is no royal road to success. You must now turn your attention to work, and it depends on your own efforts whether the promise of your natural abilities and scientific education will be fulfilled. You have been taught the best methods in surgery. Show the people that you have profited thereby, and thus win their confidence.' Instead of that, he withdraws him from London; from college, and seeks to place him, a mere stripling in his profession, over his fellow professionals who have had a score of years of practice, and if the Government did not appoint his son he would write them a long letter full of veiled allusions but not one direct charge. The performance is disappointing and provoking, and we are pleased to find Doctors Bisset and Kendall condemn it, as, in our opinion, it deserves to be condemned."

Dr. A. C. Hawkins, to whom reference is made, continues the controversy in a letter to the *Mail*. We would call especial attention to

the two case-reports, which he thinks he "may be pardoned for publishing." The letter reads:—

"I see Dr. McKay is out again at his old work of disparagement and detraction. This time, for a wonder, he leaves his older colleagues alone, and aims his shafts directly at myself and Dr. Bissett, and, indirectly, at the hospital and local government. In private and in public, in season and out of season, in places of low repute and high repute, he pursues his libelling way, and with it all he manages to make it appear that he is actuated by unselfish and disinterested motives, for the public good. If the truth were known, however, it would be quite apparent that Dr. McKay's motives in trying to shake confidences in the hospital, is that of the very lowest and meanest order.

"Being the oldest surgeon on the staff, and having established a reputation by fair means and foul, it pays him to place and keep his colleagues on the staff, under a cloud of distrust and suspicion. It is grist in his mill to make it appear that he is the only man in Nova Scotia who can be safely trusted with a knife. With this end always uppermost he keeps the alleged inferiority of the hospital always before the public.

"Nero, in quest of pleasure, set fire to Rome, and Norman, in quest of dollars, makes the pages of the *Herald* sizzle with flaming "dolorations." The disgraceful methods by which he strives to accomplish this are too well known to require mention or elaboration. His last attack upon myself from behind Dr. Bissett's shoulders, is quite characteristic of his sly cunning. Were I the only one whose professional reputation he has tried to blacken, I would have more cause to complain, but as it is, I simply fall heir to his selfish malignancy towards the whole surgical staff of the hospital.

"I was house surgeon for Dr. McKay when he was appointed to the Victoria General Hospital. For many years I have been surgeon to the D. A. R. and I. C. R. That, with a large private practice has kept me in touch with the surgery of the day. I did my own operating whenever possible, and when otherwise, I took advantage of the Victoria General Hospital, where, through the courtesy of the staff, I often assisted in cases sent there by myself. I am, therefore, familiar with the record of Dr. McKay and his colleagues, and I can truthfully state that they have been quite as successful, if not more so, than he has. They have had a lower death rate, and led the way in some of the most recent advances in surgery. They were first to perform prostatectomy, and that successfully; they were first to operate for rupture of the stomach, also successfully; they were first to do an end to end anasto-

mosis of the intestines, successfully also, and first with cæsarean section, successfully. Last summer, by this operation, at both of which I assisted, they saved two mothers and their children, the first time in the history of the province. But there is this difference, that while Dr. McKay advertises himself and defames his colleagues to the utmost, they go on with their work, saying nothing.

"One would imagine that a man of Dr. McKay's position, with a large practice, and fat salary from the Dominion Government, for doing next to nothing, could afford to let others live unmolested and work without being slandered. He is not in such a strait as to be compelled any longer to float upon the wrecked reputation of others, nor can he by any means shield himself by claiming to be doing dirty work for the public good. In refusing to have anything to do with his colleagues, he has given them a chance to show that they can do equally good work; that they can take charge of the whole as well as a part, and that his presence on the staff is not by any means essential to the success of the hospital. On the other hand, it is well known that he is a hindrance in many ways. His place could be filled very easily by an equally good man, who would work in harmony with the staff and be a source of assistance and strength to it.

"Coming to the charge which Dr. McKay tries to father upon Dr. Bissett, viz., that my appointment to the staff of the hospital was a disgrace. I have to point out that the expression of any opinion in private is not justification for uttering a libel in public. Two wrongs do not make a right. A thrust over another man's shoulders may be as fatal in effect as it is malignant in intention, and cowardly in execution. This is characteristic of Dr. McKay's attacks. They are delivered here, there, and everywhere, but always under sly cover. A man who fights in this way may escape for a time, but sooner or later he becomes an object of universal distrust and contempt.

"I am not afraid to compare the success of my surgical operations with that of Dr. Mackay. Two parallel cases, now come to mind, which under the circumstances I may be pardoned for publishing. One is my own practice—Mrs. K., suffering from pain in the right side, diagnosed as cholelithiasis (stone in the gall-bladder), operated on in the infirmary by myself, Drs. Chisholm and Hogan assisting, stone removed, and patient sent home cured in four weeks.

"The other, Mr. W., also suffering from pain in the right side, diagnosed by Dr. McKay as stone in the gall-bladder, also operated on by him in the hospital. No stone: so much for diagnostic skill; but, worse still, on fumbling around, he discovered an enlarged kidney, and

forthwith removed it. On examination by Dr. Murray it was found to be in such a condition as is often seen in chronic Bright's disease. The other kidney must have been in a worse condition, for the patient died promptly in six days from complete suppression of urine.

So far as I know he has not yet tried to father this mistake of his upon others, but judging from his past record, that is the next thing he will be stooping to do."

AMERICAN LARYNGOLOGICAL ASSOCIATION.

The American Laryngological Association opened its Thirtieth Annual Congress in the Windsor Hotel, Montreal, on Monday, the eleventh of May last. This was the first time in its history that the Association convened outside the United States. It was a glowing compliment to the popularity and worth of Dr. Herbert S. Birkett that, setting aside all precedent, the society thought fit to cross the border, and meet in the metropolis of Canada, the home of its energetic president.

The sessions were held in the Ladies' Ordinary, which was beautified with an abundance of flowers. At the opening meeting Dr. T. G. Roddick, Dean of the Faculty of Medicine, McGill University, on behalf of the medical profession, welcomed the visiting Fellows and their ladies to Montreal.

Then followed the address of the President, Dr. H. S. Birkett, on "The Early History of Medicine in the Province of Quebec." This was both literary and scientific, and will be a valuable asset to the history of Canada, for, if one thing more than another could be gathered from the reading of this address, it was the manner in which the History of Medicine was incorporated with the very history of Canada itself.

The amount of work that the preparation of such a paper entailed must have been enormous. Dr. Birkett is to be congratulated upon presenting something new, and original, and opening up a new field of thought for future papers. All must hope for the time when they will be able to read Dr. Birkett's able address in extenso. On the conclusion of his address the President declared the congress formally open for business.

The first two papers were on much the same subject, "Case Report; Removal of Foreign Body (grain of corn) from the Trachea of a Child of Six Years," by Joseph H. Bryan, M.D., of Washington, and "Personal Experience in the use of the Bronchoscope, Esophagoscope, and Gastroscope," by Thomas H. Halsted, M.D., of Syracuse. Both papers elicited considerable discussion. The important facts that all emphasized in the use of the tubes were:

1st. Early examination of the patient after the swallowing of a foreign body; 2nd, The importance of the X-rays in revealing its location; 3rd, The necessity of trained assistants in passing the tubes; 4th, The advantages of a general anæsthetic; 5th, The use of cocaine, even with a general anæsthetic; 6th The advisability of having everything ready for an immediate tracheotomy; and 7th, The means of local medication of lesions of the respiratory passages, and œsophagus through the tubes.

Dr. Harris P. Mosher, of Boston, read the next paper, "The Formation of the Hard Palate," which was a supplement to his paper of last year. With the aid of wet specimens and plates the salient points of the paper were strikingly illustrated. The alteration of the nasal septum and accessory sinuses were all shown to be dependent upon facial asymmetry, in the formation of which the hard palate played an important role.

After the discussion on this paper the Fellows and their ladies took a special car for the Montreal Hunt Club, Outremont, where they were tendered a luncheon by Dr. and Mrs. H. S. Birkett. The drive out to the club was a pleasant diversion, and all thoroughly enjoyed their short sojourn on the west of Mount Royal.

While the association was in session in the Hunt Club, the ladies of the party, under the guidance of Mrs. Birkett, were driven around the city and shown the principal points of interest, after which they returned to the club, where the whole party entrained for Montreal after a very pleasant afternoon. During the afternoon session the following papers were read and discussed:

"Case Report: Cyst of the Frontal Sinus, communicating with the Frontal Lobe," by Clement F. Theisen, M.D.; "Notes upon two unusual Frontal Sinus Cases,' by J. Price-Brown, M.D.; "A case of Sinusitis; severe Cerebral Symptoms relieved by operation, Pyemia, Death, Autopsy," by Lewis A. Coffin, M.D.; "Papillitis Atrophicans Bilateralis Linguæ," by Henry L. Wagner, M.D.; "Case Report: Sarcoma of the Tonsil, Operation and Pathological findings," by J. Edwin Rhodes, M.D.; "The Influence of Adrenalin in the Causation of Arteriosclerosis," by Frederic E. Hopkins, M.D.

The symposium on "Recurrent Abductor Paralysis of the Larynx," was begun in the afternoon. It was opened by a reading of the following papers: "Introductory Remarks on Anatomy and Physiology, Causes of Central Origin," by Joseph W. Gleitsmann, M.D.; "Causes, of Peripheral Origin," by D. Bryson Delavan, M.D.; "Symptomatology," by Clarence C. Rice, M.D.; "Diagnosis and Treatment," by William E. Casselberry, M.D.

In the evening the members were the guests of the President at a a reception given in their honour in the Galleries of the Art Association, where they had the opportunity of meeting some of the medical profession and society of Montreal.

The presentation of the reports of the secretary, treasurer, librarian, and committee on nominations opened the second day of the Congress. Dr. John O. Roe, of Rochester, read his paper on "Methods of opening the Maxillary Antrum with Presentation of a new Instrument." The writer strongly advocated the intra-nasal route as against the Caldwell Luc operation. His method was to raise the mucosa and periosteum over the nasal wall of the antrum in one flap, removing a portion of the inferior turbinater if necessary, and then with the Ballenger knife cut forward through the nasal wall of the antrum along the floor of the nose. For the further removal of the wall he presented a new forceps which expedited and facilitated the operation. Once the antrum was exposed it was treated in the usual manner. Before packing the cavity the flap of mucosa and periosteum was turned in over the edge of the opening to make it quite smooth..

Dr. Roe's paper aroused a spirited and lively discussion. Whilst all the Fellows did not hold the same opinion, still all agreed that the radical operation should not be performed on acute cases of empyæma of the antrum; that in many cases, notably the acute, the intra-nasal route sufficed; that the radical should not be done before trying the minor operation; that opening into the antrum through the alveolus was neither surgical, scientific, nor hygienic, for through it there was a constant discharge of pus into the buccal cavity; that the Caldwell Luc method offered the best view of the antrum; that both operations effected cures, and, finally, that the introduction of drainage tubes was to be deprecated, for in the majority of cases they projected above the floor of the antrum.

Dr. T. Melville Hardie, of Chicago, reported a case of unusual ætiology, "Abscess of the Larynx following Pneumonia." The patient made a successful recovery after the abscess was opened.

Other papers read at the morning session were: "The further history of a case of Laryngeal Scleroma previously recorded (1906)," by Emil Mayer, M.D.; "Case Reports: (1) Sub-glottic Neoplasm presenting several unusual complications and cured by Tracheotomy, Brachiocephalic Cyst of the Naso Pharynx," by Thomas J. Harris, M.D.; "Some Surgical Emergencies associated with Tuberculous Larynx," by Charles

P. Grayson, M.D.; "A further consideration of Papilloma of the Larynx in Children," by J. Payson Clark, M.D.

At the afternoon session Professor Wesley Mills, M.D., delivered an elaborate address on, "The Essentials of Voice Production." This was one of the treats of the meeting, and coming from such an authority as Professor Mills, only served further to enhance its value.

Dr. G. Hudson Makuen, Philadelphia, followed with a paper on, "The Essentials of Speech Production." The rest of the afternoon was devoted to the exhibition of radiographs and pathological specimens. The pathological specimens were from the pathological museum of McGill University, and illustrated morbid conditions of the nose and throat from cases which had occurred in the Montreal hospitals. The mounting was done with that artistic care and scientific accuracy which has given the pathological department of McGill University a world-wide reputation.

Whilst all the specimens were admired, three of them attracted the greatest attention. These were three larynges with part of the trachea and œsophagus that had been removed from patients suffering from malignant diseases of these parts, and who were at present convalescing in the Royal Victoria Hospital.

The thanks of the association are due to Professor J. G. Adami, Director of the Museum, for the privilege of exhibiting these specimens, to Dr. Maude Abbott for the preparation of the descriptive catalogue, and to Mr. E. L. Judah for the expert mounting displayed.

The exhibitions of radiographs was elaborate, and the association was deeply indebted to Professor G. Prout Girdwood, Dr. Robert Wilson, and Mr. J. C. McNeill, Montreal, for their kind assistance in the preparation of this exhibit.

A special room had been darkened for this purpose, and all the plates were so arranged on a stand lighted from behind that they could be readily studied without taking them in one's hands. The many anomalies and diseases of the accessory sinuses were there depicted. The plates furnished abundant and striking proof of the importance of X-rays as a means of diagnosis. On all sides were heard words of praise, both for the excellence of the plates and their skilful mounting.

Those who contributed plates were:—Dr. C. G. Coakley, New York; Dr. S. Cummings, Toronto; Dr. W. E. Casselberry, Chicago; Dr. H. S. Birkett, Montreal; and Professor G. P. Girdwood, Montreal.

Dr. St. Clair Thompson, London, England, presented three interesting X-ray photographs showing the dangers of indiscriminate instrumentation of the frontal sinus. Both the pathological and radiograph dis-

plays had special catalogues, wherein each exhibit was fully described and explained.

Whilst the Fellows were in session, Mrs. T. G. Roddick, assisted by Mrs. Birkett, entertained the ladies of the party at an afternoon tea.

In the evening the association held its annual dinner at the Mount Royal Club, at which Dr. H. S. Birkett presided. The only non-members present were Dean Roddick, Professor Wesley Mills, and Mr. W. Harrison Bradley, the American Consul-General, who were the guests of the association.

The closing session of the meeting on Wednesday morning, May 13th, was opened by Dr. Henry L. Swain, of New Haven, who read a paper on "Cysts of the Epiglottis with Oedema and Abscess." The symptoms, diagnosis and treatment were carefully described, and the histories of several cases given. The unanimous opinion of both Dr. Swain and those who took part in the discussion of his paper, was that, while enucleation of the cyst was the ideal method of treatment, the one essential for its permanent cure was the destruction of the cyst wall, whether that be by the galvano-cautery, punch forceps, curette or irrigation of caustics.

Dr. William R. Simpson, of New York, followed with a case report of "Laryngeal Stenosis in the Adult." The patient had been successfully treated by intubation which resulted in ultimate recovery after he had worn the tube continuously for two years. This is the first case on record of laryngeal stenosis treated in this way, and Dr. Simpson is to be congratulated upon bringing before the profession a new field for the use of the O'Dwyer intubation tubes.

Papers were also read by John M. Ingersoll, M.D., of Cleveland, on "Morphology of the Turbinals"; and Dr. Braden Kyle, M.D., of Philadelphia, on "Membranous Tertiary Syphilitic Lesions of the Pharynx, Tonsils, Mouth and Soft Palate, with report of three cases."

The Secretary, Dr. James E. Newcomb, of New York, presented the closing paper of the Congress, on "Hæmorrhage following Quinsy," and reported one case where recovery followed ligation of the common carotid artery. From an exhaustive study of fifty-one cases of hæmorrhage in connection with pharyngeal suppuration, Dr. Newcomb concluded that at times the hæmorrhage was due to spontaneous rupture of a vessel owing to its weakened infiltrated wall, and not to the wounding of an artery by the operator. Dr. Newcomb's paper evoked an animated discussion. Owing to the danger of hemiplegia, the ligation of the internal rather than the common carotid was advocated by Dr. Casselberry, of Chicago. Dr. Ballenger, of Chicago, claimed that by avoiding injuring the muscles in operating the dangers of hæmorrhage

were minimized. He therefore dissected away the tonsil from the anterior pillar of the fauces and the superior constrictor of the pharynx, and then opened the peritonsillar abscess by an incision directed upwards and backwards. The discussion was closed by Dr. Roe, of Rochester, who said that in opening these abscesses he used a sharp pointed forceps having a slight upward curve, with which he went right through the tonsil until he reached the pus, when he withdrew the forceps with the blades open.

The executive session which followed brought the Congress of 1908 to an end. The visiting Fellows then drove to the Royal Victoria Hospital, where they were entertained at luncheon by the Medical Board, and later were shown through the hospital and nurses' home. Whilst in the operating rooms, Dr. James Bell, and Dr. A. E. Garrow exhibited three cases of laryngectomy, the specimens from which were among the pathological display to which reference has already been made. The new apartments for the Nose and Throat clinic of Dr. Birkett elicited the greatest interest.

We desire to offer our heartiest congratulations to the president, Dr. H. S. Birkett, for the eminent success which attended the meeting, both scientifically and socially.

J. T. R.

Reviews and Notices of Books.

Diseases of the Nose and Throat. By Herbert Tilley, B.S. (London), F.R.C.S. (Eng.), Surgeon to the Ear and Throat Department, University College Hospital, London; Teacher of Laryngology and Otology, University of London; formerly Surgeon to the Golden Square Throat Hospital, London. With one hundred and twenty-six illustrations. London: H. K. Lewis.

In the preface to this the third edition, the author says that he has endeavoured to remember that this manual is intended to form one of a "Practical Series," and, consequently, symptoms diagnosis and treatment are more fully discussed than debatable matters relating to the ætiology and pathology of the various diseases of the nose and throat.

Part I of the volume is devoted to Diseases of the Nose, the first two sections of which deal with the anatomical and physiological features of the nose, methods of examination and instruments required, with a few remarks on local anæsthetics.

In an interesting chapter on Nasal Reflex Neuroses reference is made to the fact that in spite of the vast amount which has been spoken and

written on the subject it cannot be said that even yet there is any consensus of opinion as to the true relationship which exists between pathological conditions within the nose and the influences which these may exert in the production of symptoms either in the nose itself or in more distant parts of the body.

The author then enumerates a large number of affections which have been attributed to a reflex neurosis and draws attention to the fact that similar statements have been made regarding the far-reaching good to be derived from the treatment of uterine irregularities, at the same time warning against a too hasty conclusion that a varying peripheral factor is of more importance than possibly a constant but as yet undiscoverable constitutional or central cause.

In the section on Hay Fever its association with asthma is emphasized by the fact that out of 400 cases of hay fever recently reported by Thost, 266 are said to have suffered from asthma.

As regards the internal treatment, the author has found valerianate of zinc the only drug that does any good.

Locally he has found, as have many others, tha pallantin is the agent best suited.

For the correction of deviations of the nasal septum, the operations known as Gleason's, Moure's and Asch's are described, their advantages being (according to the author) that they can be very quickly performed, and the manipulation may be carried out under local anæsthesia, or the short narcosis induced by nitrous oxide or ethyl chloride.

In enumerating the disadvantages the writer omits to mention the fact that even with the greatest care observed during the operation and subsequent treatment the results are too often unsatisfactory.

The submucous resection of the septum is next described, the method being that of Freer, which differs in minor details from that of Killian.

Nasal Polypi the author considers as of inflammatory origin, consisting of a network of connective tissue fibres in the meshes of which are a muciginous matrix and connective tissue corpuscles. Fine capillaries, in many places surrounded by small, round cells and nature of the tissue indicate inflammatory character. The theory of local œdema, and, consequently, serous nature, for some reason is not even mentioned. As regards the ætiology of polypi, he considers that inflammatory or degenerative changes in the ethmoid bone are intimately associated with their production.

Diseases of the accessory sinuses of the nose are dealt with at some length, the very excellent illustrations being of material assistance in making the subject clear to the reader. In the section on adenoids

attention is drawn to the fact that Lartigan and Nicoll found 10 per cent. of adenoids contained tubercle; similar results having been obtained by many other observers.

Mention is also made of the fact that Nicoll, after an analysis of 500 cases of enlarged cervical glands, believes 80 per cent. of them are due to tuberculous infection from the tonsils and naso-pharyngeal mucosa, a percentage that would strike one as altogether too high.

Part I is brought to a conclusion by a section devoted to non-malignant and malignant growths of the naso-pharynx.

In Part II Disease of the Pharynx and Tonsils form the subject matter, the commoner and rarer forms are discussed in a painstaking and comprehensive manner, and much information may be derived from a careful perusal of the various sections, both as regards ætiology, pathology, diagnosis and treatment.

Part III deals with the affections of the Larynx. In the section on Malignant New Growth of the Larynx, the importance of an early diagnosis is emphasized, and the writings and statistics of Semon and Butlin referred to as showing that the most successful results, in many cases amounting to actual cure, are those in which the radical operation has been performed in an early stage of the disease, when the interference can be limited to the performance of thyrotomy with removal of the soft tissues only. With regard to the radical method of treatment three kinds of procedure are open to the surgeon.

1. Thyrotomy with removal of the diseased parts. Early intrinsic carcinoma.

2. Partial excision of the larynx. Called for when the lateral cartilage is involved, or when the disease has spread to the arytænoid regions, or it may be necessary in cases of recurrence following thyrotomy.

34. Complete excision when extensive intra-laryngeal or limited extrinsic and intrinsic disease is present.

Before performing the operation of laryngectomy the author lays stress on the careful cleansing of the mouth and teeth during the days immediately preceding the operation.

The discussion of neuroses of the larynx occupies several sections, and a short reference to rheumatic affections of the larynx brings this interesting and well compiled volume to a close, a list of seventy-five formulæ being appended.

Space does not permit of a more extended or detailed review of this book, which covers a great deal of ground, it being, of course, impossible to even mention the great majority of subjects discussed; suffice it to say that a vast amount of information is contained in the 524 pages,

and anyone interested in the study of diseases of the throat and nose will find it to his advantage to read this carefully prepared and excellently illustrated volume.

W. H. JAMIESON.

PARAFFIN IN SURGERY; A Critical and Clinical Study. By WILLIAM H. LUCKETT, B.S., M.D., and FRANK I. HORN, M.D. Surgical Publishing Co., 92 William Street, New York.

This is an instructive little book to all who are interested in the subject of paraffin in surgery. A brief *résumé* of the literature of the subject has been carefully presented and criticized. The chapters devoted to the chemistry of paraffin, the early disposition of paraffin in the tissues, physical state of paraffin bearing on its disposition, the ultimate disposition of paraffin, technic and armamentarium, as well as its many indications for use, have been ably dealt with.

Medical News.

CANADIAN MEDICAL ASSOCIATION.

The 41st annual meeting will be held at Ottawa, June 9th, 10th and 11th, 1908.

PROVISIONAL PROGRAMME.

Presidential Address—Dr. F. Montizambert, Ottawa.

Address in Medicine—Dr. Risien Russell, London, England.

Address in Surgery—The Surgical Rights of the Public—Dr. John C. Munro, Boston, Mass.

MEDICAL SECTION.

Dr. John T. Fotheringham, Toronto, Chairman; Dr. Alex. J. MacKenzie, Toronto, Secretary.

Our Experiences in Broncho-Pneumonia—Dr. C. S. McVicar, Hospital for Sick Children, Toronto.

The Differential Diagnosis of Some Forms of Mental Disease and a Note as to Treatment—Dr. G. J. Fitzgerald, Toronto.

Out-Patients' Clinic for the Tuberculous Poor—Dr. Harold C. Parsons, Toronto.

On the Choice of a Climate—Dr. Geo. D. Porter, Toronto.

Hæmoptosis in Pulmonary Consumption—Dr. J. H. Elliott, Toronto.

Spina Bifida Associated with Syringo Myelia—Dr. Colin D. Russel, Montreal.

Meningitis—Dr. A. E. Kanney, North Bay.

Some Interesting Complications of Pulmonary Tuberculosis and Their Treatment—Dr. J. K. M. Gordon, Gravenhurst.

Ergot—Drs. E. V. Henderson and W. H. Cronyn, Toronto.

Some Unusual Cases of Rheumatism—Dr. A. McPhedran, Toronto.

What Shall We Say to Our Neurasthenic Patients?—Dr. C. S. Young, Prescott.

Pernicious Anæmia, Report of Cases in Country Practice—Dr. James Baird, Hemmingford, Quebec.

Some Further Observations on Pneumo-Thorax—Dr. W. F. Hamilton, Montreal.

Myo-Cardial Change in Valvular Disease—Dr. H. B. Anderson, Toronto.

Surgical Section.

Dr. Geo. E. Armstrong, Montreal, Chairman; Dr. Edward W. Archibald, Montreal, Secretary.

Title to be announced—Dr. James Bell, Montreal.

Congenital Pyloric Obstruction—Dr. F. J. Shepherd, Montreal.

Temporary Colostomy as a Curative Agent in Post Operative Fæcal Fistula of the Colon—Dr. J. M. Elder, Montreal.

The Administration of the General Anæsthetic from the Standpoint of the Operator—Dr. H. A. Beatty, Toronto.

Reports of Two Large Abdominal Tumours with Remarks—Dr. A. B. Atherton, Fredericton, N.B.

Title to be announced—Dr. A. Primrose, Toronto.

Diagnosis and Treatment of Ureteral Calculus, accompanied by Case Reports—Dr. A. E. Garrow, Montreal.

Exhibition of Cases to Show Result of Operations Reported at the London Meeting, 1903. Advanced Hip-Joint without Shortening—Dr. R. P. Robinson, Ottawa.

Calculus of Ureter Removed per Vaginam—Dr. Walter McKeown, Toronto.

Combined Medical and Surgical Section.

Discussion on General Peritonitis.

Carcinoma of the Buccal Cavity, Etiology and Treatment—Dr. A. R. Robinson, New York.

Subdural Hæmorrhage and Its Surgical Treatment—Dr. E. W. Archibald, Montreal.

On the Use of the Ortho-Diagraph in Medicine—Dr. Robert Wilson, Montreal.

Treatment of Meningitis with Flexner's Serum—Dr. F. G. Finley and Dr. P. G. White, Montreal.

The Diagnositc Value of Perversion of Gastric Secretion—Dr. Graham Chambers, Toronto.

The X-Ray as a Therapeutic Agent, Its Indications and Untoward Effects, Having Special Reference to Its Action upon the Generative and Internal Secretory Organs of the Body—Drs. Omar Wilson and J. Harold Alford, Ottawa.

Public Health Section.

Address by the Chairman, Dr. Hodgetts.

Title to be announced—Prof. Starkey, Montreal.

Title to be announced—Dr. J. D. Lafferty, Calgary.

Title to be announced—Dr. Seymour, Edmonton.

The Medical Inspection of Schools—Dr. John Hunter, Toronto.

Laboratory Workers.

Dr. W. T. Connell, Kingston, Chairman; Dr. A. R. B. Williamson, Kingston, Secretary.

Anæsthesia in Laboratory Work—Dr. V. E. Henderson, Toronto.

Chorion Epithelioma in the Testis—Dr. C. B. Keenan, Montreal.

A Criticism of the Ammonium Nitro—Molybdate Method of Detecting Organic Phosphorus in the Tissues—Geo. G. Nasmyth, M.A., Ph.D., and E. Fidler, B.A., M.B., Toronto.

The Bio-Chemical Characteristics of Bacillus Influenzæ—Dr. Hanford McKee, Montreal.

Title to be announced—Prof. J. George Adami, Montreal.

Title to be announced—Prof. J. J. Mackenzie, Toronto.

Title to be announced—Dr. C. W. Duval, Montreal.

Contribution to the Pathology of Tumours of the Lung—Three cases of Sarcoma: (1) Primary, (2) Secondary—Dr. E. St. Jacques, Montreal.

On the Technique of the Study of Complement Deviation—Dr. A. H. U. Caulfeild, Toronto.

Combined Public Health and Laboratory Work.

Water Supplies and Water Analysis—Dr. J. A. Amyot, Toronto; Dr. T. A. Starkey, Montreal; Dr. Gordon Bell, Winnipeg; Dr. W. T. Connell, Kingston; and others who will contribute to this discussion.

Section on Eye, Ear, Nose and Throat.

Dr. H. S. Birkett, Montreal, Chairman; Dr. Hanford McKee, Montreal, Secretary.

New Therapeutic Notes—Dr. Wilfrid Beaupré, Quebec.

Title to be announced—Dr. G. H. Mathewson, Montreal.

Title to be announced—Dr. Roy, Quebec.

Some Points in the Technique of Sub-mucous Resection of the Nasal Septem—Dr. C. M. Stewart, Ottawa.

Ulceration of the Cornea, Etiology and Treatment—Dr. Hanford McKee, Montreal.

(1) Calcified Fibroma of the Orbit; (2) A Case of Bilateral Lardaceous Infiltration of the Buccal Mucous Membrane, not hitherto classified—Dr. J. N. Roy, Montreal.

Section on Mental and Nervous Diseases.

Dr. W. H. Hattie, Halifax, Chairman; Dr. J. C. Mitchell, Brockville, Secretary.

Some Clinical Considerations of Dementia Præcox—Dr. Elbert M. Somers, Ogdensburg, N.Y.

Hydrotherapeutics when applied to Mental and Nervous Diseases—Dr. A. T. Hobbs, Guelph.

The Differential Diagnosis of some forms of Mental Diseases, with a note as to Treatment—Dr. Gerald Fitzgerald, Toronto.

Title to be announced—Dr. E. W. Archibald, Montreal.

Title to be announced—Dr. Colin Russel, Montreal.

Some Points in the Etiology of Progressive Muscular Atrophy, with Especial Reference to Heredity—Dr. D. A. Campbell, Halifax.

A Study of Thomsen's Disease (Myotomia Congenita)—by a sufferer from it.

Insanity and the General Practitioner—Dr. Moher, Brockville.

Hysterical Manifestations Occurring After the Removal of a Brain Tumour—Dr. D. A. Shirres, Montreal.

Section on Gynæcology and Obstetrics.

Dr. F. A. L. Lockhart, Chairman, Montreal; Dr. D. Patrick, Montreal, Secretary.

Title to be announced—Dr. Wm. Gardner, Montreal.

Some Cases of Cæsarian Section—Dr. R. E. Webster, Ottawa.

Pregnancy and Heart Troubles, with Reports of Cases—Dr. J. C. Cameron, Montreal.

Title to be announced—Prof. de L. Harwood, Montreal.

Cases of Vicarious Menstruation—Dr. Blakeman.

Uterine Inversion, with the Report of a Case—Dr. D. Patrick, Montreal.

The Role of the Gonococcus as a Factor in Infection, following Abortion or Full Term Delivery—Dr. Fraser G. Gurd, Montreal.

Report of Second Case of Chorio-Epithelioma—Dr. F. A. L. Lockhart, Montreal.

Thoroughness in Abdominal Surgery—Dr. A. Lapthorn Smith, Montreal.

Pubiotomy—Edward D. Farrell, Halifax, N.S.

Title to be announced—Dr. D. J. Evans, Montreal.

Military Surgery.

Dr. G. Sterling Ryerson, Toronto, Chairman; Dr. T. H. Leggatt, Ottawa, Secretary.

Addresses by the President of the Association of Medical Officers of the Militia of Canada, Colonel Ryerson, M.R.D., Toronto.

On the Advisability of Forming a Canadian Ambulance and Red Cross Association—Lieutenant-Colonel Jones, D.G.M.S., Ottawa.

Title to be announced—Lieutenant-Colonel Cameron, A.M.C., to V Field Ambulance.

The Territorial Army Medical Corps, and the Canadian Medical Services—A Comparison—Lieutenant-Colonel Sponagle, A.M.C.

Title to be announced—Captain H. A. Kingsmill, 7th Fusiliers.

Some of the Difficulties met with in Camp Sanitation—Captain G. M. Campbell, 7th C. A.

Title to be announced—Lieutenant-Colonel Maclaren, P.M.C., M.D. No. 8.

The Present Aspect of Military Sanitary Work—Major L. Drum, P. A. M. C.

Ready and Simple Tests for Water, Milk and the Detection of Disease in Animals—Captain L. M. Murray, A.M.C., No. 1 Field Ambulance.

THE ONTARIO MEDICAL ASSOCIATION.

The twenty-eighth annual meeting of the Ontario Medical Association, held in Hamilton, on the 26th, 27th and 28th of May, proved a great success. The attendance was extremely good, there being between three and four hundred members and their friends present. The meetings of the various sections were well attended, and it was particularly noticeable that the special section for Diseases of the Eye, Ear, Nose and Throat, a new departure this year, was especially well attended, there being over forty members at its meetings. The discussions were keen and to the point—the system adopted by the committee of sending beforehand synopses of the papers to be read, to those elected to lead the discussion evidently had its effect, and might well be adopted in

future association meetings. The programme was long, but owing to the commendable strictness of the chairmen of the various sections in enforcing the time-limits, the day's schedule was carried through without delay and without any of the sense of weariness one so often experiences towards the close of a long day's session.

While nothing very new was added to the sum of scientific knowledge, the contributions were, on the whole, well prepared and interesting. Amonst those who read papers were several from the neighbouring cities in the States and also from New York and Baltimore. Montreal was represented by quite a large contingent, and papers were read by Drs. Armstrong, Stirling, Garrow, Howard and Russel. Dr. Meakins, formerly of the Royal Victoria Hospital staff, at present working in the Rockefeller Institute, New York, also contributed an interesting paper on Rheumatism.

As usual in such meetings the social aspect vied with the scientific in interest. A smoking concert one evening at the Royal Hamilton Yacht Club, and the banquet, at which the members and guests of the association were the guests of the doctors of Hamilton, were both most enjoyable. At the latter, Dr. Roddick, in an able speech once more championed the worthy cause which he has had so long at heart, the much to be desired Dominion Registration. Dr. Birkett, an old Hamilton boy, responded to the toast of "Our Guests," while Dr. Howard replied to the toast of "The Ladies."

As a place for meeting Hamilton could not be excelled, the natural beauty of the city and its environment lends itself to any such entertainments. The guests were afforded an opportunity of visiting the fruit-growing district, where the trees, one mass of blossoms, were a memorable sight.

We cannot conclude without a word of congratulation to the doctors of Hamilton, the committee, and especially to Dr. Ingersoll Olmsted, the president, to whose hospitality, energy and enthusiasm the meeting largely owes its success.

The 41st annual meeting of the Canadian Medical Association will be held on June 9th, 10th and 11th, in Ottawa. The meeting will be held in St. George's Parish Church Hall, Metcalfe Street, and in the Racquet Court, while sections will meet in the Carnegie Library. The Medical Protective Association will meet at noon on June 9th, and the Military Surgeons meet for the first time as a section of the Association. The Presidential Address will be given by Dr. F. Montizambert, the Address in Medicine by Dr. Risien Russell, of London, England, and

the Address in Surgery by Dr. John C. Munro, of Boston. The sections, as usual, will be Medical, Surgical, Public Health, Laboratory Workers, Eye, Ear, Nose and Throat, Mental and Nervous Diseases, and Gynæcology and Obstetrics. Visitors are requested to ask for a Standard Certificate when buying single fare tickets, which will entitle them to return at reduced rates.

At the 58th annual meeting of the Montreal Dispensary, the secretary announced that a sum of $1,500 additional income is required for the coming year. Dr. Jack and Dr. H. B. Carmichael were elected honorary life governors, and Hon. J. K. Ward was made a life governor.

Following are the newly-elected officers:—President, Mr. Geo. Esplin; First Vice-president, Mr. G. F. C. Smith; Second Vice-President, Mr. W S. Kerry; Hon. Treasurer, Dr. Jack; Hon. Secretary, Dr. H. B. Carmichael; Committee of Management—Messrs. C. S. J. Phillips, I. H. Stearns, E. E. Rothwell, A. Piddington, John Patterson, Drs. R. H. Westley, H. D. Hamilton, R. A. Kerry, George A. Brown.

A most important meeting, to be held this year in America, is that of the International Congress of Tuberculosis, which will be convened in Washington, from September 21st to October 12th. Many of those interested in the subject here will attend; Professor Adami, who has always been prominent in the local League for the Prevention of Tuberculosis will officially represent Cambridge University.

At the annual meeting of the Royal Society of Canada, held in Ottawa last month, Professor A. G. Nicholls was elected a Fellow of the Society. Professor A. B. Macallum, of Toronto, presented a paper upon "The Nuclear Membrane, and its bearing upon Heredity"; Professor Adami, one upon "Pathological Data bearing upon Adaptation," and Professor Wesley Mills, upon "The Care of Laboratory Animals."

At the recent annual meeting of the German Pathological Society, at Kiel, Dr. Oskar Klotz, of McGill University, presented a paper upon "Work Arterio-sclerosis," which was read by Professor Aschoff, of Freiburg. We present in the space devoted to the Retrospect of Pathology, an account of the work of this meeting, which is the most representative assembly of German pathologists that takes place.

We understand that the contracts for the new Medical Building of McGill University have been given, and that the actual excavating will

begin at once. It is our hope to be able to give our readers the plans of the building at an early date.

Dr. T. G. Roddick, Dean of the Medical Faculty, McGill University, has laid his resignation of the Deanship before the Governors of the University.

Retrospect of Current Literature.

MEDICINE.

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON, AND HOWARD.

MEDICAL PROGRESS IN 1907.

Tuberculosis.

This is still the subject about which most is written. In fact, there was probably about as much published on the subject of tuberculosis during 1907 as all the other medical diseases together. One of the first publications of interest during the year was the 2nd Report of the Royal Commission on Tuberculosis, which was concerned wholly with the question of the relationship between human and bovine tuberculosis, the subject which has been so widely discussed since Koch's famous assertion in 1901, that bovine tuberculosis was a different disease and not dangerous to man. The conclusion explicitly stated in this report was that while there were many strains of tubercle bacilli of varying virulence, nevertheless, a certain number of cases of tuberculosis, especially in children, are caused by the bacillus of bovine tuberculosis, introduced through cow's milk; further, that while there is a difference between the effect of bovine and human tuberculosis on inoculation, the bovine is always the more virulent. This is only in accordance with many other recent publications on the subject, but the report of the Royal Commission is noteworthy as likely to carry considerable authority, especially with the English people.

The International Congress on Tuberculosis in Vienna, last September, was largely concerned with channels of infection of tuberculosis, especially as to whether the bacilli reached the lung chiefly through the respiratory or digestive tract. This has been the subject of an enormous mass of investigation and publication since Behring published his hypothesis that pulmonary tuberculosis was of intestinal origin, the bacilli entering the blood from the lymphatics and being filtered out by the lungs. Calmette, Vansteenberghe, Grysez and others endeavoured to

show the intestinal origin of both pulmonary tuberculosis and anthracosis, by putting cinnabar, India ink, charcoal powder, and tubercle bacilli in the stomachs of animals either through a tube or by laparotomy, and later showing by autopsy that they had been conveyed to the lungs. The various articles are most contradictory in their conclusions, and the most that can be concluded is that the tubercle bacillus is able to pass through the intact mucous membrane of the alimentary tract without producing a lesion at the point of entrance and then pass with the chyle through the thoracic duct into the blood and so reach the lungs, and also that the lungs may be directly infected through aspiration, but which is the usual mode of infection remains unsettled.

The question of notification of tuberculosis and management of sanitoria was also discussed at the Vienna Congress. Compulsory registration has been adopted in some places in Great Britain and United States, voluntary registration in many other places. Both methods have their advocates, but neither has been tried long enough to draw definite conclusions as to its usefulness in limiting the spread of the disease.

The use of tuberculin as a diagnostic agent has come strongly to the front through, 1st, the work of v. Pirquet of Vienna, who showed that a local reaction may be obtained by applying tuberculin to the abraded skin, and 2nd, the independent demonstration by Calmette and Wolff-Eisner that a filtered sterile solution of tuberculin dropped in the eye causes a conjunctival hyperæmia in tuberculous patients without causing constitutional symptoms. The subject has been so fully discussed recently in the Medico-Chirurgical Society here that I merely refer to it as one of the discoveries of the year. The conclusion of E. R. Baldwin in a recent comprehensive paper on the subject is worth quoting. He says, "The most one can say at present is that a prompt, positive reaction to a small dose adds to a suspicion when symptoms of tuberculosis are present."

No account of the year's work on tuberculosis would be complete without some reference to questions of opsonins, the opsonic index, and Wright's method of treatment of vaccines controlled by the observation of the opsonic index. Very numerous papers on the subject have been published and the question is being investigated in all medical centres of the civilized world. I had hoped to get some one who was better qualified than myself to discuss this subject this evening, but failing this, can only give my personal impressions for what they are worth, hoping some member of the society will volunteer more exact information later.

My own impression is that while the observation of opsonic index by Wright's method has afforded us much interesting information as

the cause of certain phenomena in acute diseases and the effects of various treatments, nevertheless, the practical results of the treatment of tuberculosis, gonorrhœa, meningitis and many other diseases with vaccines as advocated by Wright, have been on the whole disappointing, and the method has by no means achieved the success originally claimed for it, and is already falling into disuse in most places.

As to the treatment of tuberculosis there is little new to report. The use of tuberculin in small doses has steadily become more general, whether controlled by observation of the opsonic index or not. Many different preparations of tuberculin are now in use, and each has its advocate. The whole question of the preparation of the different tuberculins and the dosage is too intricate for detailed discussion at this time, but I merely note in passing that the use of tuberculin in some form in selected cases, has become a feature of nearly all the sanitaria and many favourable results are quoted.

The publication of the method of the use of graduated exercise in convalescent cases of phthisis at the Brompton Hospital Sanitarium has led to considerable discussion. Some observers claim that the course of convalescence can be shortened and the general condition of the patients improved by allowing carefully supervised work, and incidentally the patients thus allowed to contribute something towards their support. Of course, no exercise or manual labour is permitted any patient showing rise of temperature or other active symptoms.

The principle of hyperæmia, as in Bier's method, has recently been applied to the lung, and Kuhn publishes a description of a mask to be worn by the patient with a view of inducing hyperæmia of the lungs by opposing inspiration while allowing full expiration.

Francis Hare publishes several papers in the *Lancet* advocating the use of amyl nitrite inhalations for hæmoptysis, on the theory that this does not act as a vaso-dilator to the pulmonary vessels, and that the prompt lowering of blood pressure checks the hæmorrhage. A number of papers have been published on the subject, many of them favourable to the idea.

Of the acute infectious diseases, typhoid fever naturally takes the first place.

The fact seems established that a certain proportion of patients recovering from typhoid become chronic typhoid carriers, that is, virulent bacteria are present in their body and may be excreted in the urine and fæces for many years, and thus these persons remain sources of infection to the community. It is asserted that the gall-bladder is the usual home of the bacilli in these cases, and one writer goes so far as to advo-

cate draining or excising the gall-bladder in these cases, a suggestion not likely to be adopted, especially as the bacilli seem to cause no disturbance to their host.

The subject of paratyphoid infections continues to excite considerable interest and the various strains of paratyphoid bacilli and their relation to the typhoid and colon bacilli respectively have been thoroughly investigated. Many cases of paratyphoid infection and small epidemics due to this form have been recorded. The cases appear to fall into three classes: 1st, those resembling typhoid fever and only distinguished by the absence of the Widal reaction and the power of the blood-serum to applutinate organisms of the paratyphoid group, or by the appearance of paratyphoid bacilli in blood cultures. This is the usual type and the course is usually mild; 2nd, cases giving the clinical picture of an acute septicæmia, some of the cases on autopsy show a condition of ulceration of the intestine more like dysentery than typhoid; 3rd, the organisms have been found in abscesses in cases in which no history of typhoid fever has been obtained.

It is suggested that the immunity conferred by an attack of typhoid is more absolute than was formerly supposed and that the history of second attacks of the disease are really infections of another organism.

Letulle, in an article in *La Presse Medicale* calls attention to a symptom of typhoid fever first described by Duquet in 1883. He asserts that in 10 to 20 per cent. of all cases, small, shallow, painless ulcers appear, generally on the anterior pillars of the fauces, sometimes on the soft palate. He states that these appear about the end of the first week, often before the roseola, and are pathognomoic of typhoid, also that the reason they have not been more frequently noted is that they are easily overlooked unless specially searched for.

Many laboratory workers report increasingly favourable results in the method of early diagnosis of typhoid fever by blood cultures; the success appears to be due to the larger amount of blood taken and the use of bile salts media. Some go so far as to claim that typhoid bacilli are present in the blood throughout the course of every case of typhoid fever.

Leishman, Harrison, and Luxmoore publish further results of the use of antityphoid inoculations in the British Army, and claim that the incidence of the disease has been greatly diminished in those inoculated, especially where the inoculation has been repeated.

Chantemesse of Paris, publishes full accounts of his use of antityphoid serum in the disease and his results for six years. The serum is obtained from horses which have been repeatedly inoculated with typhoid toxins in the form of filtered and sterilized cultures of typhoid

bacilli. After the injection of the serum is a period of reaction lasting several days, when the temperature is apt to be higher and the patient appears worse. This phenomenon Chantemesse ascribes to the destruction of the bacilli in the body and consequent liberations of toxins. After the reaction is a period of deflevescence during which the patient gradually becomes convalescent. In 1,000 unselected cases treated, Chantemesse claims a mortality of 4.3 per cent, while the mortality in the other hospitals of Paris during the same time was 17 per cent.

Apart from this there is little new on the treatment of typhoid in the many papers dealing with the subject. A more liberal diet than formerly is generally advocated, *i.e.*, all liquids and soft foods allowed in cases desiring them and presenting no contra-indication in the way of diarrhœa, etc.

The rigid Brand system of cold baths is advocated in several papers, notably in the article of Thos. McCrae, in Osler's Modern Medicine, but, I believe I am not mistaken in stating on my own responsibility, that the general tendency is to substitute cold sponges and cold packs for the general bath. It is certainly the tendency in the hospitals in this city.

On the subject of pneumonia I find little to note. The method of treatment in the open air as advocated by Northup has found many supporters and is now widely used.

Edsall and Pemberton advocate the treatment of unresolved pneumonia by X-rays, claiming good results in all cases treated early, *i.e.*, before fully organized.

Thompson, in the *Edinburgh Medical Journal,* advises the use of urotropin in all cases of scarlet fever as a prophylactic against nephritis; he quotes a rather inadequate number of cases (43) in support of this.

The occurrence of scattered epidemics of cerebro-spinal meningitis continues to attract considerable attention to this disease. The disease and its treatment by serum, as advocated by Flexner, was too recently considered in this society for me to do more than mention it. Much light has been thrown by recent work on the symptomatology and course of hydrocephalus and chronic basilar meningitis and their relation to epidemic meningitis more clearly understood.

The recent epidemic, if it may be so-called, of anterior poliomyelitis in the United States has called forth a number of papers. The study of the cases and the result of lumbar puncture and autopsy seem to have thrown little new light on the etiology, but some authors draw an interesting contrast between the cases occurring epidemically and the ordinary sporadic cases. They assert that the epidemic cases

are more liable to be fatal, are more apt to be confused by meningeal symptoms, and to be complicated by a more widespread paralysis than the sporadic cases, and on the other hand, the paralysis is more apt to clear up entirely, leaving no ill results than in an ordinary case.

Blumenau (Russkii Vratch) Romberg and Pässler (D. Arch, f. kl. M.) publish articles based on experimental and clinical data to prove that early collapse in acute infections, as typhoid, pneumonia and scarlatina are not due to cardiac failure or acute dilatation, as often stated, but to a dilatation of the blood vessels of the body, especially of the splanchnic system from vaso-motor paralysis, so that the condition is analogous to shock in surgical condition. They state that the heart usually is able and willing to do its work and only fails through lack of its usual blood-supply. They therefore urge that such cardiac stimulants as alcohol and strychnine are more or less useless. Blumenau advises more particularly digitalis, for its effect on the vaso-motor system, and camphor, with intravenous salines.

Musser contributes an interesting paper on empyema as a complication of pneumonia. In 12,982 cases of pneumonia empyema occurred in 2.1 per cent. He is inclined to lay great stress on the persistence of leucocytosis after the crisis, on the reappearance of leucocytosis as probable evidence of a beginning empyema. He also states that the presence of a constant, not necessarily severe pleuritic pain and deep-seated localized tenderness along the division of the lobes or at the extreme base of the lung is highly significant of a beginning empyema.

Emmerich (Münch. Med. Woch.) describes the treatment of diphtheria by pyocyanase. This is obtained by passing culture of B. Pyocyaneus through a Berkefeld filter and reducing the filtrate to one-tenth its volume in vacuum. The substance thus obtained is strongly bacteriolytic for many bacilli and dissolves the false membrane in diphtheria. Emmerich insufflates 3-4 cc. of pyocyanase into the throat with a hand atomizer and claims the diphtheritic process is arrested at once. Escherich, Pfaundler, Jehle and others seem to corroborate his results. One difficulty of estimating the success of the treatment is that it is scarcely justifiable to omit the antitoxin treatment, and it is difficult to know to which treatment the results should be ascribed.

Osburn and Craig have investigated the cause of dengue in the Philippines, and assert that there is no infection if protection from mosquitoes is rigidly enforced. Inoculations of filtered and unfiltered infected blood, intravenously into healthy men produced a typical attack. The disease can be transmitted by the culex fatigans. Period of incubation is three to four days. No organism could be demonstrated in the blood.

Their conclusion is that it is transmitted only by the bite of the mosquito.

The publication of the 7th Report of the Commission on Mediterranean or Malta fever, under the control of Col. David Bruce, is noteworthy as marking the ultimate success of a long and painstaking investigation.

I need scarcely remind this society that Malta fever is known around the shores of the Mediterranean and resembles typhoid in many ways, except that it has a lower mortality and a more chronic or intermittent course. It has always presented a serious obstacle to the maintenance of English garrisons in Malta and other places, and so has been carefully studied by English army surgeons. Some years ago the cause of the disease was found to be the micrococcus melitensis, but the method of transmission remained a matter of dispute until a little over a year ago, when it was discovered that goats were susceptible to the disease. When one reflects that goats are the chief source of milk supply in those countries, that 10 per cent of the goats in Malta were found to be actually suffering from the disease, and that the specific organism can be recovered from milk of the affected animals, the means of transmission and also of prophylaxis become obvious. By exercising supervision over the goats supplying the English garrison and ordering all milk to be boiled the number of cases in the English army was reduced in a few months by 85 per cent. There seems no doubt that Malta fever may now be regarded as one of the absolutely preventable diseases.

H. B. C.

PATHOLOGY.

UNDER THE CHARGE OF DRS. ADAMI, KLOTZ, DUVAL, AND NICHOLLS.

The German Pathological Association.

Kiel, April 23rd to 25th, 1908.

The association held its annual meeting in the new Pathological Institute at Kiel. Professor Hiller, the director of the Institute, presided at the meetings and invited the members of the association to inspect the new Institute.

The most important part of the programme was the discussion of the cancer problem. The subject was introduced in its various aspects by Professor Lubarsch, Professor Ehrlich and Professor Apolant. The first gave an excellent *résumé* of our present knowledge of cancer as we know it in the human body, while the two latter confined their

remarks to the experimental study of cancers, and more particularly to the process of immunity in cancer.

Lubarsch pointed out that the research, concerning the origin of cancer, is particularly difficult, since our recognition of cancerous states is dependent upon a single method, the histological, and, further, our definition of cancer as an "infiltrating and destroying growth," does not permit us to recognize the earliest beginnings of cancer. As yet we have no way of definitely differentiating cancerous cells from the normal,— and this must necessarily be so, since between the normal epithelial cell and the very malignant cancerous cell there are all transitions of atypical structures. Moreover, animal experiments of transplanting tumour-masses, although teaching us much concerning the biological nature of cancers, cannot help in determining the origin of the cancerous nucleus.

It was also pointed out that those theories which represent the cancerous growth as the result of foreign cell proliferation (Kelling, Sticker), must be disregarded to-day. (Sticker in the discussion brought forward experiments in support of his contention. He found that certain cancers of the penis in dogs are inoculable to bitches by coitus.)

Lubarsch, and he was supported by others, found that Ribbert's inflammatory theory of cancer was untenable. In Ribbert's doctrine two main features are brought into prominence, the changes taking place in the subepithelial connective tissue, and the unicentral growth of cancers. Ribbert has, however, placed too much stress upon the connective tissue changes, which he believed were necessary antecedent processes of atypical epithelial overgrowth. That connective tissue changes, sometimes inflammatory, do take place about cancerous infiltration was admitted by Lubarsch, but these are *secondary*. It was also admitted by Lubarsch that these (inflammatory?) changes in the stroma of cancer may aid the further invasion of epithelial cells, probably on account of the altered biological relationship between the cancer cells and the connective tissue. But the feeling of the meeting was almost unanimous that the inflammatory changes in the subepithelial connective tissue do not necessarily precede cancerous growth. In fact, the condition of the subepithelial connective tissue gives us no clue as to the character of the epithelial growth (whether malignant or benign), for changes quite similar to those seen in cancer can be found in the fibrous stroma of adenoma and papilloma.

The biological change in the cancerous epithelium can, in many cases, be recognized histologically by certain alterations in the protoplasm and nuclei of the cells; nevertheless, one often finds that the specific nature of the cells is retained, even when a high grade of malignancy is present.

Lubarsch believed that the biological change of the cancer cells was not dependent upon congenital abnormalities, and that we need not seek the origin of all cancers in embryonic misplacements of epithelial tissue. Nevertheless, some cancers bear some relationship to developmental defects which are particularly prone to occur in the testis, ovaries and kidneys. In general, it might be said that the growth of cancers, as well as the property of the individual cells, bears some relation to, and is dependent on the surrounding tissue and the general system. These properties of cancerous cells, differing, of course, with the organs from which they are derived, are gradually developed and are, to a certain extent, alterable. This is best noted in the animal experiments, where it is found that cancerous tissue may, after many generations, alter its functions and nature.

Thus, in short, Lubarsch pointed out that our knowledge of cancer has been but little enhanced in recent years; that our recognition of cancerous tissue is still dependent upon certain histological changes which can be appreciated only after the growth has reached certain dimensions; that cancerous cells assume new functions which are developed gradually; that the power of growth of these cells is increased, and that the reasons for these altered functions and rapid proliferation of epithelial cells, is still unknown.

Ehrlich and Apolant discussed their recent animal experiments with cancer. They found that certain animals present a lessened resistance to cancerous inoculations. This variation in the resistance varies at times with the race of animals used, and when a susceptible race is inoculated with cancerous material, the newly developed cancer increases in virulence for all animals. This is an important point in the understanding of malignancy of tumours. Animal cells, in this way, resemble the changes in virulency that can be produced in bacteria.

These authors have also found that the implantation of cancerous tissue of low virulence into animals, protected those animals, to a certain extent against the inoculation of more malignant tissue of the same kind.

A remarkable result was obtained in one case. Cancerous tissue of moderate virulence had been inoculated from animal to animal for about twenty generations. In the later generation the cancerous tumour gradually gave place to a sarcomatous one arising out of the stroma of the epithelial growth. In the end, the epithelial tissue entirely disappeared, leaving only a tumour mass resembling a spindle-celled sarcoma. It was not made clear whether this new tumour was a true sarcoma or only a sarcoma-like growth arising out of epithelial cells. The question

of carcinoma sarcomatodes was discussed at some length, but no new light was thrown on these peculiar growths.

To summarize these findings, Ehrlich and Apolant report that animals vary in their resistance to the same cancerous tumour; that tumours can be altered in their malignancy by repeated inoculation into susceptible animals; that the transplantation of tumours over many generations may alter their histological structure; that a relative immunity can be acquired by the inoculation of tumour masses of low virulency.

In the general discussion which followed, Gierkie presented some opposition to Ehrlich's findings. Working in Bashford's laboratory, he found that the implantation of tumour masses into animals did not protect these animals against the inoculation of fresh and more virulent cancers. He also noted the variation in the malignancy of cancerous material when inoculated into susceptible animals, and he pointed out also the difference in the resisting powers of the animals. In general the English grey mice show a much lower resistance to cancerous growths than the German.

Lewin reported a case of cancerous metaplasia similar to that reported by Apolant. In this case a mouse cancer which had been carried over many generations developed into a mixed tumour and eventually into a pure sarcoma, in which no remains of the epithelial tissue were evident.

The finding of spirochætes in cancerous tissue was explained by Simmonds. He noted that cancers of the alimentary tract usually contained spirochætes. These organisms were identical with the spirochætes found in the mouth. Not infrequently, too, cancers of the skin contained these organisms. In no case did he find spirochætes in primary growths of the prostate, kidneys or pancreas, while cancers of the mouth, stomach and intestine usually contained these in large numbers.

Dr. Nagayo and Dr. Saigo reported on the degenerative changes found in the Purkinje muscle bundles of the heart. Saigo found that the bundle of His undergoes degenerations in common with the general musculature of the heart. These degenerations, however, are less pronounced in the Purkinje fibres. Inflammatory exudates and fatty degeneration are at times to be noted. Nagayo found that normally the Purkinje fibres in animals contain large quantities of glycogen. In man, on the other hand, the glycogen becomes evident only under pathological conditions.

That the heart is severally affected by extreme injuries was shown by Külbs. He demonstrated that in dogs, severe blows on the thorax will produce hæmorrhages into the myocardium, epicardium and endocardium. Hæmorrhages at the base of the valves are not infrequent.

Saltykow reported the production of arteriosclerosis in rabbits by the inoculation of staphylococcus cultures. His results are similar to those

obtained by Klotz with streptococcus and typhoid inoculations. Dr. Klotz demonstrated arterial changes of the nature of sclerosis (atherosclerosis) which had been produced in animals by increasing the arterial tension through work. This had been accomplished by suspending the animals by the hind legs for three minutes each day for three months. The changes produced resemble human arteriosclerosis.

Professor Marchand demonstrated an anomaly of the heart in an adult, in which the aorta sprang from an undeveloped ventricle. Marchand considered the ventricle to be the right one. The specimen was similar to one in a case of situs inversus, reported by Dr. McCrae in the Montreal Medical Journal.

Dr. Ziller demonstrated the results obtained by the inoculation of filtered "old" tuberculin, under the skin. He showed that typical tubercles with giant cells are developed. From this it would appear that the toxic substances of the bacteria stimulate this tissue growth and the production of the "foreign body" giant cells. Baumgarten believed that even with the finest filters at our disposal, a certain amount of fine particles passed through, and that it was these particles which stimulated the giant cell growth.

Ellermann reported the successful transferance of fowl leukæmia from animal to animal.

Dürck demonstrated a peculiar nodular syphilitic leptomeningitis. By some the evidence of syphilis was considered incomplete and they regarded the process as tuberculous.

Beïtzke discussed the retrograde lymph flow, and its bearing to tuberculous infection.

Aschoff reported his study on the hypertrophy of the medulla of the adrenal in cases of arteriosclerosis and chronic interstitial nephritis.

O. K.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

(Continued from last issue.)

A swab infected with the gonococcus when rubbed across the medium will give a good growth of the specific coccus. In fact it is easier to grow than the bacilli of typhoid and dysentery, or many other bacteria that most practitioners regard as easy to cultivate. Dr. Chipman said that after all, in a great many cases, we were thrown back on the clinical picture for diagnosis and he gave as example typhoid fever. I may be permitted to say that at present the up-to-date laboratory does not rely

on the "Widal test" as it once did. Here again the material is plated and the organism isolated. The typhoid bacillus is isolated from the stool and the blood with comparative ease and long before the agglutination reaction develops, therefore instead of waiting for the Widal test to confirm the diagnosis they immediately examine the blood or the stool for the isolation of the organism.

HANFORD MCKEE, M.D.—The question is one which appeals more or less to oculists as sometimes called upon to treat ophthalmia neanotorum. That this condition is caused by other organisms than the gonococcus has been established. There are many points in Dr. Gurd's paper which are of very great interest, especially the technique used in carrying out the experiments. I think the hæmoglobin agar as used by him both in the tube and in the plate is the best medium for growing the gonococcus and certainly the most useful medium for conjunctival bacteriology. That we cannot depend upon "smears" in doubtful cases was brought to my mind two months ago in a case of ophthalmia neanotorum which was clinically a very severe gonorrhœal infection. I made numerous smears from the thick greenish discharge but was unable to find any micro-organism whatever. The history and appearance of the case were typical and I felt sure that it was a gonorrhœal infection. The inoculation of a tube of hæmoglobin agar resulted in a pure culture of the gonococci.

WESLEY MILLS, M.D.—I wish to congratulate Dr. Gurd on his work. He is one more of the very youngest members of the Association to point the way of the immediate future on medicine, and it will be well for us all if we can realize this. I would also call attention to Dr. Cameron's suggestion. It seem to me that if the method of the future, is that of scientific accuracy in diagnosis, there must be some public laboratory accessible to the general practitioner, and this is one of the subjects which I think might well come before this Society. Certainly it appeals to me very strongly.

F. B. GURD, M.D.—Dr. Lapthorn Smith rightly remarks that many cases are seen in which he would be unwilling to take his oath upon the diagnosis of gonorrhœa. I am no more willing to state that in all cases it is possible to make a positive diagnosis from the bacteriological examination of the vaginal, cervical or other discharge. I think, however, that the bacteriological diagnosis is frequently most easily made in cases clinically the most difficult.

In the acute cases which are apparently gonorrhœal after the presence of various contaminating organisms in large numbers or the active antiseptic treatment being carried out by the patient makes the isolation of the gonococcus almost impossible. On the other hand as Dr. H. M.

Little at one time was good enough to remark, rarely is the bacteriological examination unsatisfactory in the chronic and otherwise difficult cases.

The twelfth meeting of the Society was held Friday evening, March 20th, 1908, Prof. Wesley Mills, President, in the chair.

INFANTILE HEMIPLEGIA.

A. MacKenzie Forbes, M.D., showed two cases of this condition before the Society. This form of cerebral paralysis is of the spastic type, of which there are three subdivisions: the infantile hemiplegia, cerebral diplegia and spastic paraplegia. The two cases before the Society are of the hemiplegic type and present the characteristic lesions. In both the paralysis appeared some time after birth. In the older of two boys these deformities or symptoms are accompanied by convulsions, in the younger there is defective cerebration. As regards treatment, both are being treated for the common deformity, wrist drop. In these cases the hand instead of being allowed to drop is held in the hyper-extented position, after the plan of the late Mr. Thomas, "the muscle shortening scheme." Both, also, have their forearms held in pronation and I have thought of operating in both cases, later for this deformity. Mr. Tubbey has described an operation for this. By changing the insertion of the pronator radii terres he converts it into a supinator.

C. F. Gurd, M.D.—I would like to ask what results are expected from this treatment if it is merely expected to get the hand into proper position or if any real permanent improvement is to be expected. Do these cases show improvement from the first symptoms? One case I saw similar to this showed considerable improvement after a lapse of some time, the patient has now a fairly useful leg which was absolutely useless two or three months previously. The arm was in the same condition as these patients show.

W. G. Turner, M.D.—One point with regard to these cases is early diagnosis, before they get too spastic or the limbs become too fixed. In a number of these cases if the early diagnosis is made and the anticipation of these contractures provided for and corrected much better results are obtained; this is well seen in the two cases before us which had they been treated when infants these contractures would not have been in the marked condition they are now. In any case correction treatment is distinctly indicated to prevent the unsightly flexion and pronation deformity, which is almost the usual result if they are neglected.

A. Mackenzie Forbes, M.D. In answer to Dr. Gurd's question I think there is not any doubt at all that these cases tend to improve in the

early years, for instance these children must have walked with a much more pronounced limp originally. The improvement tends to appear in the lower limb first. The principle of treatment (or of muscle shortening) is, that at first we have a strong tendency to flexion and that this stretching the extensors gradually weakens them. If we can dorsi-flex the hand these muscles get a chance to retract and in this position increased power is gradually obtained.

Dr. Cushing, of Baltimore, suggests that as soon as we have diagnosed a lesion which is likely to cause paralysis it is wise to consider operation on this lesion. All this class of paralyses is due to hæmorrhage, and it may be wise to perform a cranial operation for the relief of pressure and by doing this ward off the later paralysis and probably the epilepsy which occurs in about 60 per cent. of the cases.

CHART OF TRYPANOSOMIASIS IN A EUROPEAN.

JOHN L. TODD, M.D.—A chart was shown to emphasise three important points:—

1. The extraordinary chronicity of trypanosome infections. The patient had been under continuous observation for eight months. During all this time, save during the severe fever of the first fortnight, the patient had felt, comparatively speaking, well and had no great complaint. The temperature had been usually normal, but at irregular intervals of from a few days to a fortnight there had been rises of temperature, on one or two occasions reaching 102.5 but usually not exceeding one degree.

2. In spite of continual treatment by Atoxyl, the trypanosomes were still present in the circulating blood; that is, the parasites were "Atoxyl-fast" or atoxyl resistant. Atoxyl had been introduced in the treatment of trypanosomiasis by Dr. Thomas, a McGill graduate. The wonderful action of this drug on the parasites has been abundantly confirmed by other observers. Thomas had shown that it was not always efficacious and Ehrlich had proved that strains of trypanosomes may acquire a permanent resistance to the drug and be able to run a course in an infected animal entirely unaffected by its administration.

3. The disease commenced in the present instance within three weeks after the arrival of this case in Africa. We may therefore assert with confidence that the incubation period of human trypanosomiasis may be so short as three weeks. The shortest incubation period previously noted was four weeks.

CHIGGER FLEAS.

JOHN L. TODD, M.D.—Moist preparations of feet heavily infected with Chigger fleas were shown.

This flea (*Sarcopsylla penetrans*) and its habits have been known for centuries (1551). It was first discovered and named by Linnaeus in the middle of the Eighteenth Century. It originated in Tropical America, between 30° North and 30° South. At about 1872 it was imported by a Portuguese vessel to the West Coast of Africa; from there it spread rapidly over the whole of the African Continent, and from its East Coast, to Madagascar, Persia, India and China. It is found everywhere but is particularly abundant in dry, sandy places.

The males, and the females—until they are impregnated live in the same way as does the common flea. They are only casual parasites of warm-blood animals; but, so soon as the female is impregnated, she attaches herself to the skin of her host and burrows beneath the epidermis until only the terminal segments with the genital orifice and tracheal openings are visible; all that can be seen on a white skinned person when the flea first embeds itself is a small black spot. Since the fleas live upon the ground, naturally those parts coming in contact with the earth are the most frequently infected by the fleas. Thus for example, in men, the soft skin between the toes and around the roots of the nails are the most usual sites.

The free living female is about 1 m/m in length. The male is twice that length. Both have the familiar laterally compressed, ovate brown body of the more common fleas; but are slightly smaller, and their body is somewhat deeper. So soon as the female has become embedded beneath the epidermis of its host, it commences to increase rapidly in size through the enormous development of its reproductive organs, until it reaches the size of a large pea and contains hundreds of eggs; the abdominal segments become so stretched that the originally brown flea becomes quite white. The cephalo-thorax, with the first and the last two segments of the abdomen, does not participate in this enlargement. As the eggs mature, they are laid and expelled through the wound opening into the sand, where they develop after a few days in to a long cylindrical larva. The larva forms a cocoon, from which the perfect insect emerges in 8 or 10 days.

The chief danger of infection by the chigger is the possibility that the little wounds it creates may become infected. It is probable that the life of the embedded flea is only some three weeks; it then dies. Probably the fleas are often killed before this by some slight pressure or violence which ruptures their distended abdomen. In either case infection occurs and the space formerly occupied by the flea becomes a small abscess cavity in which the remains of the chigger are present as a foreign body. In many cases ulceration sets in earlier and by the sloughing of the enclosed skin the living insect is set free. Sometimes the entrance of the flea is accompanied by pain; frequently, however,

the first intimation of its presence is a scarcely noticeable uneasy sensation of pain or pressure with slight itching. On inspection, the black spot which shows the end of the flea is seen surrounded by, perhaps, a slightly raised reddened area. On shelling out the flea it is often found to have reached the size of a large pea without producing any noticeable discomfort. One can easily understand, therefore, that a careless person, or one whose sensibilities are dulled by disease, as sleeping sickness, may come to be fairly honeycombed by these parasites. In such persons, whose wounds are untreated, the condition may easily go on until deformity or even loss of toes be produced through suppuration and gangrene. Tetanus is not an infrequent complication.

The treatment consists in merely removing the sand flea at the earliest possible moment. If it is already of any size, the very greatest care must be taken not to rupture it lest portions be left behind in the wound. The cavity is wiped out with some disinfectant and the wound heals uninterruptedly. Where chiggers are at all numerous, every native carries a blunt needle or a sharp little stick with the sole purpose of shelling out the chiggers which attack him. Those living in chigger infected countries should wear high shoes, these and the socks should be in good repair. One should never go bare-footed, even in a bedroom. Some persons recommend the use on the feet of strong smelling substances: Oil of Cloves, Balsam of Peru, or Petroleum, perhaps a needless precaution. In any case, a careful inspection of the feet should always form part of the daily toilet. In dwelling places the development of the fleas may be kept down to some extent by the constant sprinkling of water: carpets are, of course, inadmissable and all rooms must be kept scrupulously clean.

D. J. Evans, M.D. I was unfortunate enough while on a trip to Jamaica to get one of these fleas in my toe; it caused little or no inconvenience and was removed by one of the natives. On the return trip also just as we were entering New York I had a similar experience. It caused a little discomfort on walking but nothing else and I had it removed some four or five days later by a confrere in Vermont.

Wesley Mills, M.D. Dr. Todd has just become a member of the Society this evening and as he has presented a communication I think he must hold the record for activity in a new member. We welcome him as a member of our Society and trust that this activity and originality may continue to stimulate the rest of us.

THE OPHTHALMO-TUBERCULIN REACTION.

R. P. Campbell, M.D.

Hanford McKee, M.D.

P. G. White, M.D.—Dr. Campbell read the paper which was published in the April number of the Journal.

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Hygiene and Sanitation—Domestic, Municipal, National, and International.

BY

F. MONTIZAMBERT, I.S.O., M.D., F.R.C.S. (Eng.), D.C.L.

This meeting marks a distinct advance, and the commencement of a new era, in the history of the Canadian Medical Association. The adoption last year of our new constitution—which comes into force to-day—has raised us to the status of a national body. It seems, therefore, eminently fitting that our first annual meeting under the new constitution should be held in the national capital, and under the presidency of a medical man holding as an officer of the Federal Government what may be called a national position.

But in this connexion, let me say here, that in addressing you to-night I speak not as a Government official, but as an individual member of this association.

As you know full well, our profoundest feelings are often the most difficult to express. I shall limit myself to saying that, in the presence of this assembly of those who have come from the north, the south, the east and the west of this great country of ours, bringing with them to grace this meeting at the capital of the nation varied and priceless knowledge, how to increase the duration and value of human life, and elevate humanity to the highest standard of physical, mental and moral perfection,—one may well feel many misgivings as to one's ability to meet the full measure of your reasonable requirements.

There have been gods and goddesses of disease and of medicine from very ancient days. Back in the far-away times of the first Chaldean Empire, some five thousand years ago, there was a fever-god, a plague-god, and even a headache-god; and to overcome their evil influence the intervention and good offices were required of Bel-Merodach, the

son of Ea, "by whose spells the sick are restored," and of the Goddess Gula, the Queen of Physicians, "whose wisdom alleviates the ills of humanity."

Similar gods with similar attributes may be traced down through the various empires and dynasties, Babylonian, Theban, Assyrian, Median, Phœnician and Egyptian; until under the Ptolemies the Hellenic gods were identified with the Egyptian, after Alexander the Great of Macedon bridged the gulf dividing Occident and Orient. And then we have Apollo, who was amongst other attributes, god of medicine under his name of Pæan; and the original "pæans of rejoicing" were hymns loudly chanted by the Delphian virgins after Apollo had been sufficiently propitiated to overcome the pestilence. Apollo being possibly too busy about other matters, Æsculapius, his son, is the god of medicine most usually recognized; and then, in the Homeric days, we first hear of a goddess of health, Hygeia, daughter of Æsculapius, and so grand-daughter of Apollo,—Hygeia, the most delightful and pleasing personality of all those that have come down to us from the ancient mythologies. The conjunction of the goddess of health with, and descent from, the gods of medicine is not without its element of flattery to the medical profession. It is at her shrine that I propose to pay tribute this evening.

A writer on hygiene has divided the history of sanitation into four epochs or eras:

The Hebraic epoch, or era of Domestic Sanitation.

The Roman epoch, or era of Municipal Sanitation.

The Gothic epoch, or era of National Sanitation.

The epoch or era of International Sanitation.

This is in some ways a convenient division, and I shall make use of it to a certain extent this evening.

The Hebraic Epoch, or Era of Domestic Sanitation.

With regard to this epoch, I shall not detain you by going over the familiar ground of the wonderful set of hygienic rules and regulations known as the Levitical Law or the Laws of Moses. They were most perfectly adapted to the conditions of life of those to whom they were given, and many of them are good for all times and for all environments.

Amid the wreck of the Dark Ages, what had been taught and what little had been handed down regarding the necessities of hygiene to personal health, was buried. Filth, instead of being abhorred, was almost sanctified. The monks imitated the filthy habits of the hermits and saints of early Christian times, and the early Fathers commended

them. Even St. Jerome used to praise the filthy habits of the hermits. He especially commended an Egyptian hermit who combed his hair on Easter Sunday only, and never washed his clothes at all. Monks, up to the time of the Reformation, thought, or professed to think, that by antithesis pollution of the body indicated cleanliness of the soul.

Only within the last century has the resurrection and re-establishment of sanitation upon a firm and more enduring basis been attempted. And this applies not only to personal and domestic hygiene, but to municipal and national sanitation, on which I shall touch later on.

It has been said that the ruling characteristic of this age is the tendency and effort towards perfecting the physical, intellectual and moral welfare of mankind. In these days of struggle and strenuous existence we hear much of the various means for the advancement and protection of the agricultural, the manufacturing, the mercantile and other interests; and of the race for social distinction, and the efforts people make to trace back their family tree as far as possible towards the one in which their original ancestors used to live and to disport themselves. But what question of mere business or social gain can compare, either in advantage or importance, with the general and individual interest which every one has in the preservation of life and health? No matter what the labour, manual or intellectual, in which one is engaged, nor how productive, each and every mode of obtaining individual supplies and of contributing to the social welfare of the community is, and must ever be, subordinate—both intellectually and generally—to the possession of health.

It is not to be expected that legislators can go much in advance of the views entertained by the mass of the people in the value of preventive and protective measures. "Sanitary instruction is even more important than sanitary legislation," said the late Earl of Derby—himself eminent both as a sanitary instructor and as sanitary legislator.

We must, therefore, be patient and untiring in our efforts to educate and encourage the more intelligent and thoughtful to adopt about their homes and in their daily life hygienic precautions. Their example in these matters will gradually extend by imitation and habit to those less favoured by fortune. Every one can do a little, every one can to a greater or less degree take a lively and practical part in the great crusade against dirt and disease. As has been well said: "If all the individuals in the city appreciated the fact that they are to some extent responsible for the condition of the public health, and, in order to keep their consciences clear, kept their back-yards, cellars, alleys, houses and rooms clean, the reports of the Commissioner of Health would show the result of the multiplied effort."

One of the most difficult parts of the work of improving such sanitary matters has been already greatly strengthened, that is, the getting the people to recognize the fact that dirt is always dangerous,— by the gaining as our potent aid in preventing nuisances of the kind of which we are speaking—the public press of the country. At the present day things notoriously injurious to health are detected by the news-gatherer and commented upon in the daily papers. And neglected, dirty or untidy alleys and premises, the precursors of nuisances which in times past would have gone unnoticed, are now pretty certain to be complained of and remedied. These vigilant and influential voluntary inspectors are powerful agents for good, and they are ever on the advance and render any falling behind impossible.

"In the beginning," said a Persian poet, "Allah took a rose, a lily, a dove, a serpent, a little honey, and a handful of clay. The rose had a thorn, the lily was frail, the dove was timid, the serpent was guileful, the honey was very sweet, and the handful of clay was a handful of clay. Yet when Allah looked at the amalgam, lo! it was a woman." And nowhere better than in the hygiene of the home can this complex creature find her sphere for energy and active work. It is to the women of a family that should naturally come the instilling into the minds of the young, hygienic ideas that will remain with them through life. "Train up a child in the way he should go, and when he is old he will not depart from it," is true now as it was in the days of Solomon. To the women belongs the duty of teaching children to breathe through the nostrils, and to eat slowly; of training her daughters and sisters to protect the upper part of the chest; not to squeeze the waist; to have nothing tight below the knee; to wear thick-soled boots; and skirts clear of the ground, so as not to sweep up and carry home the impurities and bacteria of the streets and pavements. Amongst other phases of domestic sanitation may be mentioned the enforcing of proper ventilation of the home; the purity of the milk supply; the boiling of the drinking water and that used for washing vegetables that are eaten raw, where it is doubtful; the use of ice in a jacket outside and around the water jug, butter dish, etc., and not within; and the removal of dust instead of only redistributing it by stirring it up with broom or duster.

Then again, she can use her influence and authority against late hours at night. There is no doubt that many of the nervous breakdowns which are becoming increasingly common are due in part at least to the modern artificial life, turning so much of the night into day, since the introduction and perfection of artificial light. There can, I take it, be

no doubt that nature intends the hours of darkness for that sleep which restores and prepares. The children's old hymn says:

"When the darkness deepens,
"Stars begin to peep;
"Birds and beasts and flowers
"Soon will be asleep."

"Birds and beasts and flowers" follow this law of nature, and it would be far better for the health of the nation if men would go to sleep with the other beasts, and women fold up and go to rest with the other flowers. I hold with the old saying that one hour's sleep before midnight is worth two hours after it. I do not hold with the other old saying: "six hours sleep for a man, seven for a woman, and eight for a fool." If that opprobrious epithet is to be employed at all in this connexion, it should, in my opinion, be applied to the person who is able to secure eight hours sleep at night, and yet fails to do so. But those eight hours should be between dusk and dawn, instead of our sitting up late under artificial light, and wasting the early daylight hours in sleep.

Then there is to be borne in mind the possibility of the conveyance of consumption and other diseases by kissing. Against the kiss of strong affection and of love, against that most delightful method of putting two and two together, especially when only one pair is feminine, no sanitarian will waste his time in close words. But one may possibly have a chance to obtain a hearing with regard to other forms that might well be abolished or diminished. It would surely be an advance from the sanitary standpoint and one not too hopelessly unreasonable, if the masculine handshake, or some other similar greeting, could be substituted for the formal conventional touching of feminine lips to lips which is so general amongst women on meeting and on separating.

Again, the general and indiscriminate kissing of babies and young children by every friend and visitor might surely be omitted. This would not involve an overwhelming amount of self-denial, for the infant at any rate, and it would protect it from a risk to which we have no right whatever to expose it without its understanding and consent.

I speak of the home aspect of sanitation as being especially women's work, because it is in the home that she finds her fitting and proper sphere. The new woman now-a-days is forcing herself forward as a competitor with man in almost every line of life. Nature herself tells us in several ways that this should not be so. Take as one evidence of

this the distribution of hair upon the face. The man is supplied with a mousfache to act as a dust filter and protection for the nostrils (and it should therefore be all brushed upwards), and a beard to protect the throat and chest. It is he, therefore, that is evidently intended to go out and face the elements and the dust and other dangers of most kinds of work. And the absence of this hirsute addition to the face of the woman must surely be nature's indication that she is intended for the shelter and protection of the home. But though that is her rightful realm, and she is the angel of the home, the source of all its beauty and grace, and sweetness and comfort and joy, it by no means follows that she is to sit there with folded hands in smiling and idle acceptation of our homage and adoration. Looking again at the faces, we see that both sexes have been given eyebrows. Now, the physiological use of the eyebrow is of course to prevent drops of moisture upon the forehead running down into the eye. As women have eyebrows, it is evident that besides the beauty of those eyebrows being a fit subject for the rhapsodies of the lover and the sonnets of the poet, they are given for their physiological purpose also, and that women should carry out all the active and energetic labours symbolized by the expression "the wielding of the broom." (Not the wooden end upon her male relatives except under very exceptional circumstances, but the bushy end). And certainly in no better way can they labour for themselves and for others than in sanitary work in the home.

In this every one can do a little, if only to make one home or one room more bright, more cleanly, more wholesome. Sunlight, pure air and cleanliness are the natural enemies of disease germs. There is no sounder philosophy than is contained in the old sayings: "There is more health in a sunbeam than in drugs, more life in pure air than in the physician's skill," and that "sunlight may fade your carpets but better that than have disease fade your cheeks."

In the temples of Hygeia the statue of Apollo sometimes is found standing with that of the goddess of health for worship. This is possibly because he was originally a god of medicine. I like to think, however, that there may be another explanation, and that is that he is present in his character of Helius the sun-god; and that this placing of the sun-god in the temple of the goddess of health shows an appreciation even at that day of the health-giving effects of sunshine.

The Roman Epoch or Era of Municipal Sanitation

This epoch or era is so named because the great city of Rome set perhaps the most remarkable example of this phase of preventive medicine; a city which worshipped as a divinity the sweet smiling goddess of

health; a city in whose municipal administration the highest place was accorded to the sanitary corps; a city which supplied pure drinking water of crystalline purity from the distant mountain lakes and streams by its seven or eight great aqueducts, of which four still remain; aqueducts dating back to centuries before the Christian era; aqueducts considered so important that under Nerva and Trajan no less than seven hundred and twenty "curatores aquarum," engineers, architects and others, were continuously employed at the public expense to look after the water supply of the city; a city with public baths capable of accommodating all the citizens, for there were some eight hundred bath-houses throughout the city, the Thermae of Caracalla, Diocletian, Nero, Titus, Agrippa, and countless others; a city with a system of sewers dating back to Tarquinius Priscus and Tarquinius Superbus, six hundred years B.C. The Cloaca Maxima, the main drain, built in triple arches of Etruscan architecture, was so large that barges could float upon it all under the city; and so well constructed that no earthquake or other force has altered it. Though choked up nearly to its top by the artificial elevation of the surface of modern Rome, it is curious to see it still serving as the common sewer of the city after the lapse of nearly three thousand years. Under the Empire, condemned criminals repaired the sewers. To what better work could our modern jail birds be put, than that of similarly working for the sanitary well-being of their communities?

A proper drainage system is the first great duty of municipal sanitation. It must precede the water works, and be in readiness to carry off the water. To reverse this order has been well stigmatized as preposterous in its original signification of "pre," first, and "posterus," coming last, or putting the cart before the horse. And the very worst use that can be made of drainage is to pollute some river or stream with it; it is a waste of valuable fertilizers and a wrong to other communities down stream. Cities and towns must ere long come to the purification of their sewage by septic tanks, chemical precipitation tanks, or filter beds, and the using up of the effluent in subsoil irrigation.

A good water supply is the next most pressing duty of municipal sanitation. As a model from the past in this respect, I have spoken of Rome. Jerusalem also, before the days of Solomon, had aqueducts bringing water from miles distant, and through a reservoir which served as a sedimentation tank. We have another notable example in Tenochtitlan, the ancient Toltec capital, now the city of Mexico, with its admirable water works dating back long before the first meeting of Cortez and Montezuma, the Aztec chief. The difficulty of finding a pure water supply in sufficient quantity is facing every city.

With the increase of population it is hardly possible to find a near-by water shed which is not more or less contaminated by the wastes of human life. Cities have too often either to adopt or continue a suspicious supply, or to trust to methods of filtration for the removal of the disease producing elements. The remedy in some cases is fortunately to be found, as by Rome and Mexico, in bringing water from the distant mountains where it is pure and undefiled. Such a supply could be obtained for this city from the Laurentian Lakes to the north of us. This, or the purification of the water supply through filter beds, is a necessity that must soon be faced by this as by every other city.

Amongst the many further duties of municipal sanitation, I need only mention the inspection of milk, food, fruit, lodging houses, schools, public stables, abattoirs, etc; the prevention of the exposure of meat and bread to dust, flies, and unnecessary handling; the removal of garbage and dead animals, the prevention or at least the limitation of the soft coal smoke nuisance, and the inspection of plumbing. I have mentioned this last because I want to say a word about it. The health of the home and the household is more at the mercy of, and depends more upon, the work of the plumber than the doctor. There may be differences of opinion as to whether or no sewer gas carries the actual micro-organisms of disease; but all, I take it, will agree that the breathing of it in the home and the bedroom is calculated to so lower the resisting power of the body as to make it the more exposed to become the victim of contact infection. In the larger cities there are inspectors of plumbing. There should be such officers in every municipality where there is a drainage system. Soil pipes should pass along the basement ceiling and pass underground only outside the walls, and must be laid under the house. And every joint and fixture should be made and connected by a skilled workman and not by an apprentice. In the book of the Proverbs of Solomon the Son of David, King of Israel, we read that there were three things that were too wonderful for Agur the son of Jakeh, yea, four things which he understood not: "The way of an eagle in the air, the way of a serpent upon a rock, the way of a ship in the midst of the sea, and the way of a man with a maid." It has been said that had that wise man lived in our day he would have been tempted to add a fifth cause of wonderment: "the way of a plumber with the drainage of a house." There are doubtless reliable, well-informed men amongst them, but the public should have greater protection. In my opinion, plumbers should be admitted to practice only under a license in sanitary work and drainage, given only after examination,—some similar system to that very rightly required for physicians for the security and protection of the people. And the public should be

educated and encouraged to choose for employment as plumbers and as inspectors men holding diplomas and certificates, such for instance as those of the Royal Sanitary Institute, now procurable in this country.

Another duty in municipal sanitation is the enforcement of the notification to the City Health Office of all cases of infectious disease including tuberculosis. And the keeping of a House Register in which the medical and sanitary history of each house should be written, the name and number of the cases of infectious disease, with their dates, and the means taken to improve the drainage and sanitary condition of the house. Such a register is kept in many cities; it should be so in all. Reference to it would be of inestimable value to those looking at a house with the view of purchasing or hiring it. It would also be a potent lever to move holders of house properties to keep them in proper sanitary condition.

Still another municipal duty is that of the suppression or extirpation of the rat. Rats are always a nuisance of the first order, and as carriers of disease a source of public danger. From the standpoint of health they possess no redeeming qualities, and the more quickly a great diminution in their numbers is effected the better it will be for everybody The Rat Act of Denmark is one of the most remarkable laws in the history of legislation. It is the result of the grim fight carried on for ten long years by one man, Zuschlag, a civil engineer, of Copenhagen, against the most merciless ridicule poured out by the Danish press, the galling contempt of scientists, and the lethargy of the people; but in the end he finds himself acclaimed as a benefactor of his country. He is now President of the powerful and influential "Association Internationale pour la destruction rationelle des Rats," which has a membership of two thousand men of standing and known influence. In several countries governments or port authorities have adopted Zuschlag's premium system of a national campaign on this principle. In England a society has recently been formed for the destruction of rats with the support of such men as Sir Patrick Manson, Sir James Crichton Browne, Sir T. Lauder Brunton, Lord Avebury, and Professor Simpson. It has been calculated that there are as many rats in a country as there are men, women and children, and that each rat destroys one farthing's worth of food, grain or material per day. At that rate the six million rats of Canada cost us the enormous sum of over thirty thousand dollars per day.

But in addition to this, is the other terrible indictment as the conveyors and disseminators of disease germs. That enteric fever is spread by them is well established. And the important, indeed the all-important, part they play in the introduction and extension of Bubonic Plague is well summed up in the recent report of the Plague Committee

appointed by the Secretary of State for India in the statement to the effect that unless the destruction of rats is carried out with the utmost energy it will be in vain to hope to get the plague under control.

The last number of the British Medical Journal has an article on "The Cat as a preventor of Plague." In villages in India where cats are numerous rats are scarce and plague unknown. In adjacent villages, where cats are scarce and rats numerous plague prevails. The cultivation of the cat has an advantage over some other plague prevention in that it does not conflict with any caste prejudices.

As Dr. Murphy has pointed out, the connection between rats and plague has been apparently known since very early times. We read in the Bible that when the Philistines, after they had taken the Ark of God, were stricken with what was probably the Bubonic Plague, they evidently recognized as we do to-day that the disease was carried from one section of the country to another by rats, for they endeavoured to propitiate Jehovah by offering five golden images of the most noticeable result of the disease, and five golden images of the family of Mus, probably Mus decumanus—now known as the rat,—images of the probable disseminators of the disease.

The Gothic Epoch or Era of National Sanitation.

This epoch has been given its name because Theodoric the Great, Theodoric the Ostrogoth, was the first in recent history to take a wide or national view in such matters. The torrent of vital energy poured into the west by the Goths, with the collapse of the old inanimate routine of government and the old inanimate social system, the foundation of a new kind of government, and the rise of a new social fabric instinct and permeated through and through with the energy of the invading races, found one of its manifestations in the establishment of National Sanitation.

After the Conquest, with all Italy laid at his feet, Theodoric held court in the city of Ravenna by the Adriatic, and there placed the protection of the public health entirely under the control of the central government, and recognized the great truth later enunciated by one of England's Prime Ministers: "The health of the people is the first duty of the statesman."

In former ages the three great enemies of National welfare, happiness and progress were deemed to be war, famine and pestilence. Until less than a century ago all these were regarded as beyond the realm and reach of human science, and were accepted as the infliction of the Gods, or as the mysterious scourges of Providence whereby nations were chastened for their sins.

From war and the fear of war, we in this country are most fortunately and happily free.

As for famine, the genius of man has so wrought upon steam, upon electricity, and other forces of nature, that not only have the products of the earth been vastly increased, but by means of rapid intercommunication all nations have been brought into close relations, one easily supplying what another lacks. Thus national famines have disappeared, or are disappearing from the world, together with the ignorance that tolerated them.

So for pestilence. We claim, too, that disease and pestilence are not the rightful masters of man, and tyrannize over him only by reason of his ignorance or supineness. They are merely the humble subjects of nature, and come and go in obedience to her laws.

Accepting the estimate made by statisticians of the financial value of the life of each able bodied industrious man at sixteen hundred dollars, and the average cash value of each man, woman, and adolescent above twelve years of age, at one thousand dollars, we have then some slight conception of the financial value of the life of each citizen, and the loss to the wealth of the country from sickness and death from preventable diseases which destroy thousands of lives annually, the cash value of which amounts to millions. The eight thousand who die annually in Canada from Tuberculosis alone represent a financial loss of at least eight million dollars. Even from this low monetary point of view, therefore, it needs no laboured argument to prove that it should be the first duty of all governments, national and provincial, to protect the public health by enactments based upon the knowledge that sanitary science has evolved, and to see that all the members of society are benefited by them.

Nations and communities have it in their power to diminish the causes which produce sickness and premature death. From even the partial wise use of this power during the years that are recently past, the average duration of human life is slowly but progressively on the increase. But much, very much, remains to be done. And every measure which relates to the improvement of the sanitary condition of the people generally deserves the earnest support of statesmen, and the favour and hearty support of all.

Provision has been made by the National government to protect this country at large against the exotic diseases—the diseases to be detected by quarantine and by inspection— threatening from abroad.

The country has been and is so fairly protected from their inroads that every one takes their absence as a matter of course without stopping

to think of the work constantly going on at the outposts of coast and frontier. But it is the diseases we have always with us, the well known preventable diseases, that produce the greatest destruction of human life, and swell the total of the general suffering and distress in all parts of the country.

Some of these, such as enteric fever, scarlet fever, measles and diphtheria, are left in this country to Provincial responsibility. But there are some other diseases and some other points as to which it seems to me the national power can best be exercised.

Tuberculosis, for instance. This is a disease widespread throughout the whole Dominion, and it cannot be kept within municipal or provincial bounds, if only because the eastern sufferer is so apt to seek a health resort in the west. The annual death rate from tuberculosis is so high, and the financial loss to the country from these deaths and from the illness which precedes them is so grave a national matter, that it seems to me it should not be left to the separate actions of the various provinces but should be at least co-ordinated and arranged by the national Government. Sanatoria are good in their way, and would be better if they could be kept for the reception of incipient cases, to be discharged cured to make room for others. The beginning cases, however, are not those that appeal most loudly to the sympathy of the onlooker. And too often under pressure political, personal, religious and charitable, the few beds of the sanatorium are promptly filled with incurable cases, and so their highest mission fails. The same amount of money spent in dispensaries, day camps, and the dissemination of pamphlets, leaflets and other literature on the prevention of the disease, would reach and benefit hundreds for each one the sanatorium can aid. The enforcement of notification of tuberculosis also, with the appointment of inspectors to follow up each case where the visiting physician cannot or does not do so, seems to me essentially a national work and responsibility.

The prevention of smallpox also should be distinctly a matter of national sanitation. We are not only threatened with it from the Orient, from Europe, from the United States, and from South America, but from England also, owing to her retrograde legislation nullifying compulsory vaccination by the admission of conscientious objections, and yet not putting smallpox on the list of her quarantinable diseases.

Compulsory vaccination in infancy and compulsory re-vaccination in adolescence should be the national law. By such laws smallpox has been made to practically disappear from Germany. This disease is unknown in her army. In the entire German Empire during the whole of 1906 there were but 26 cases of smallpox and 5 deaths, and these cases

were largely imported from neighbouring countries. Why cannot we learn from such an object lesson as that, confirming as it does the experience of every smallpox hospital where vaccination keeps the attendants free from the disease?

I would go further still. For the victims of unpreventable diseases I have both sympathy and pity. Small pox, however, is entirely preventable. For its victims, or for those who are responsible for them, I have nothing but condemnation. Not only would I make vaccination and re-vaccination compulsory, but I would make having smallpox a penal offence. In no other way that is avoidable is one permitted to be, or to harbour what is a nuisance and an injury to one's neighbours. An outbreak of smallpox often paralyzes the travel and traffic of a small community. It always injures even the larger ones. It is a distinctly preventable disease. No one has any right to harbour an unvaccinated person on his premises any more than he has to store a supply of dynamite. No one has any right to have it, and every offender in this particular, every adult who has smallpox and the parent or guardian of every minor who has it, should in my judgment be sent, as soon as the risk of infection is over, to pick oakum for a term in the common jail, for having been guilty of a wanton and quite avoidable nuisance and misdemeanor. Or, still better, to work for a similar period at forced labour in the sanitary improvement of the municipality, as I have suggested for our prisoners before.

Railroad and Car sanitation should also come under National Sanitation. Under this heading may be briefly mentioned the prevention of the possible spread of typhoid dejecta along the roadbed, to directly infect or to be blown as dust into neighbouring sources of water supply; the use of non-absorbent coverings and curtains; the general use in sleeping cars of the thin so called emergency curtains which permit the free passage of air but not of light; the placing of ice in a jacket around the drinking water, and not in it; the provision of a separate basin over which alone toothbrushes may be used; the proper ventilation of, and preservation of temperature in, the cars, and their frequent and efficient disinfection; and the abolition of the brushing down of passengers by porters in the midst of the car, whereby the dust from each in turn is distributed over the persons and into the lungs of his neighbours. And this in order that a rapacious porter may be the more sure of the holdup for his tip. The brushing ,when required, should be done only in a corridor beyond a swing door.

If temperance be a thing to be secured by legislation, that legislation may well be national. Nothing certainly injures health more than the

diseases of the various organs that are affected by improper food and the abuse of spirituous liquour. With regard to improper food as far as quality is concerned, national sanitation has already taken hold of matters connected with the adulteration of food and drugs, and the inspection of meat for export, although not yet that of meat for our own home use.

With regard to the liquor traffic. Of all temperance legislation, the most temperate and therefore—to my mind—the most likely to gain the desired end, is that known as the Gothenburg system. The elimination of private profit upon the sale of spirits, and the commission upon the sale of non-intoxicants, are of course the essential points of this most excellent system, with the introduction and extension of which in England the name of His Excellency our Governor General is so closely connected.

I cannot pass from the subject of national sanitation without referring —still in my individual capacity, not in my official one—to the resolutions that have been passed annually since 1902 by this Association, urging upon the national Government the collecting together of national matters medical and sanitary—now scattered amongst the various departments—into a Department of Public Health under one of the existing Ministers. In connection with such a department there should, in my judgment, be a national bacteriological laboratory, with branches for the supply of vaccine and of the various sera and anti-toxins. These should be prepared and tested by men on salary and without any personal interest in their sale. And they should be issued bearing the Government stamp as a guarantee of purity and reliability and marked with a date limit of efficiency. The general practitioner throughout the country would then know just what he is using, and both he and his patient would be much better protected than they are at present. Moreover, in such a national laboratory there might well be bacteriologists and chemists engaged in original research. This country should rise above the position of hanging on to the skirts of other nations and waiting to hear from them. It is fully time that in such a national laboratory Canada also should have her investigators taking their part in forwarding the advances of science. In such a national department of Public Health there would be no interference with Provincial Rights, only a domestic re-arrangement for greater efficiency. On the contrary, one of my dreams is the creation of a national board or council of Public Health composed of the occupier of the federal office I now hold, and of a representative from each of the Provincial Boards of Health, to meet at the capital from time to time to advise the National Government in public health questions affecting the country at large. Advice and recommendations from a

council so composed should carry more weight with the Dominion Government, and with the people, than those of any one sanitary adviser be he ever so able and ever so experienced.

Departments of Public Health already exist in some countries. They are being actively striven for in Great Britain, in the United States, in Mexico and in Cuba. That we will ultimately have one in Canada I in no wise doubt.

The Epoch or Era of International Sanitation.

Within the last generation the idea has been spreading that those nations that are most active in sanitary and hygienic movements are dependent on each other for complete success. This idea has found expression in international official conferences such as those of Venice, and London, and Paris; in the international congress of Hygiene and Demography; in such international conventions as those of the Republics of North and South America; of those on Tuberculosis; in such international societies as the American Public Health Association which embraces the United States, Canada, Mexico and Cuba; and in the general international exchange of health news and bulletins.

International agreement, as a recent writer has pointed out, or even a declaration of policy to ameliorate the local conditions that cause disease, so that no people should be allowed to live without sufficiency of pure air and light, pure water and pure food, good drainage and sewerage, in other words except under the healthful environments of man which are his inalienable right,—such an agreement would furnish objective employment of national thought and energy, and by the substitution of one energy for another detract by so much from the consideration of armament and war. It has been suggested that in the search by peace congresses for measures to be recommended to the Hague Tribunal for consideration as measures towards universal disarmament, or partial disarmament, or arbitration or peace, such international sanitation as I have alluded to above might be included as tending directly and indirectly towards the full or partial abolition of war.

It is devoutly to be hoped that in the process of evolution of international sanitation, the time may be not far distant when it may be possible that there shall be Canadian Medical Officers responsible to the Dominion Government in every port of emigrant departure for this country in Europe and in the Orient. The action of such a body of men in vaccination, disinfection and careful inspection before departure would lighten the work of quarantine and immigration officials on this side. And what is far more important, it would remove to a great

extent the chances of outbreak of disease during the voyage, thus lessening the risk of infection for all classes of persons, upon the vessel. It would benefit the shipping interests greatly both in time and in money. Moreover, it would obviate the hardships which must necessarily accrue in many cases from the sending back of undesirable immigrants from the port of arrival in this country.

In conclusion, I would say that I cannot hope that I have told you anything new this evening. The truths of sanitation are well established and well known. We cannot plead now as in days of Hosea the Prophet when it was written: "The people are destroyed for lack of knowledge." But these truths—like others—require iteration and reiteration, line upon line, line upon line, precept upon precept, precept upon precept, here a little and there a little.

The best I can hope for is that I may have in some small degree presented to you some old thoughts in new settings. And I may indeed be well content if anything that I have said tends to make these truths—ever old and ever new—sink more deeply into your minds and memories, and if, by so doing, I may have advanced even by the smallest step our progress towards that time when the four sanitary epochs or eras of which I have spoken—the Domestic, Municipal, the National, and the Interational—may be followed by a fifth, towards which we are all striving and yearning, the epoch or era of Universal Sanitation.

SOME FURTHER OBSERVATIONS ON PNEUMOTHORAX WITH ESPECIAL REFERENCE TO "SPONTANEOUS PNEUMOTHORAX" OR PNEUMOTHORAX IN THOSE APPARENTLY HEALTHY.*

BY

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The interest and pleasure which one has in studying a subject in clinical medicine is usually sustained only by following one's illustrative cases to a termination either in health, or more pronounced features of the disease, or in death. About ten years ago, I was able to get together twelve cases of pneumothorax all of which I had more or less intimately observed. In that paper the etiology, symptoms and signs of this condition were briefly discussed. Of these cases (12 in all) six were dead, three were lost sight of, one was comfortable while at rest, one was at work, and one was in health. That patient who was comfortable after

* Read before the Canadian Medical Association, Ottawa, June 11th, 1906.

considerable improvement was lost sight of. The other two have been followed, one for four years, and the other to the present time.

In addition to further observations made upon these cases, fully as many more as were referred to in my first paper have been under my care, and from these, five have been selected presenting features of special interest.

The two patients whose progress has been noted since writing upon this subject in 1898 may be referred to before taking up the new cases, and for the sake of clearness their histories may be reviewed.

Case 1: is Case 7 in my former series, a saddler, aged 59, without history of previous thoracic disease. He was seen with Dr. H. S. Shaw in consultation early in 1898. The history given was that in Nov. 1897 he had fallen and broken his leg. Going to bed on Nov. 27th, 1897, he remained under treatment in bed until Dec. 22nd, 1897, when he had some pain on the right side of his chest. It was rather transient, lasting but a few days. On the 1st of Jany., 1898, while still in bed, he had a severe seizure of pain in the right side of his chest and a few moist rales were heard over this area. On the following day dyspnoea set in and signs of right side pneumothorax were pronounced, the heart was displaced to the left, the coin sound was widely heard, and amphoric breathing was present. Improvement followed, the heart resumed its normal position, the coin sound disappeared in a few weeks, no signs of fluid were ever discovered, and on March 1st, 1898, he was again at his work.

Up to the present, ten years after, there has been no recurrence of the condition.

The cause of pneumothorax in this patient is doubtful. There was nothing pointing to tuberculosis at the time of our consultation, nor has any such sign developed up to the present, and when one considers that it occurred in a patient with no exhausting illness or cardiac disease likely to induce thrombosis or embolism with subsequent localized pulmonary gangrene, the difficulty of explanation is not lessened.

Case No. 2: is Case No. 6 (3370-6686) of my former series, and as already stated, she was under observation when my paper was published. She was one in whom the signs and symptoms of pneumothorax appeared during a period of failing health. The general condition was such that a tuberculous process was considered to be the active cause, although one could not establish that view. No fluid in the pleura could be demonstrated. The signs of pneumothorax gradually disappeared and the patient was lost sight of.

She returned four years later (Feb. 28, 1902) with marked signs of pulmonary tuberculosis in both lungs. She gave a history of gradual

failure of her strength with cough and tendency to "take cold," since she was first under our observation. The pneumothorax was recovered from, and there were no signs of pleural effusion.

This case is interesting as it illustrates, doubtless, pneumothorax early in the course of pulmonary tuberculosis, and one which apparently went on to recovery without the formation of fluid.

The effusion in "every tuberculosis pneumothorax must become purulent." Such has been the teaching generally accepted, and perhaps still has its very wide application. Senator, in 1881, was the first to describe serous effusion in tuberculous cases of pneumothorax, and since this paper many similar cases have been reported.

Drasche points out that in some cases due to tuberculosis an exudate may remain serous for months while in others it becomes purulent in a few hours.

S. West says "that speaking generally the chances of the effusion in pneumothorax being serous, seropurulent, or purulent, are about even; in other words, that a purulent effusion is met with in only one case out of three."

Case 3: The following notes refer to a patient at present under my care. She was first seen in March, '08, and gave a history of failing strength, with cough and loss of weight since last Autumn. She had suffered somewhat from left-sided thoracic pain, but there had been no severe dyspnoea. The signs pointed to an infiltration of the left pulmonary apex, extending rather widely over the upper lobe. She was advised to remain in bed, and did so, but when seen again two or three days later at her home in consultation with Dr. Robert Wilson, she had well-marked signs of left pneumothorax, and fluid was present in the pleura. The fluid increased rather rapidly and on the 18th of March, about ten days after it was discovered, paracentesis and removal by syphonage of a portion of the fluid was done. During the operation we took occasion to observe by the aid of the fluoroscope the changes in the level of the fluid, and if possible to detect signs of the unfolding or expanding lung. We succeeded in one particular only. Whereas before aspiration the whole left lung field was dark as the fluid was withdrawn, the density of the shadow lessened, and a clear space appeared above, bounded by a horizontal line below, which rested at the level of the 6th rib posteriorly when the operation was over.

One was able to see in this patient's thorax the wave upon the surface of the fluid, induced by the heart beat. Sixty ounces of clear, straw-colored fluid were withdrawn. On the 23rd of March, thirteen ounces were withdrawn and again on the 30th of March, fifteen ounces clear,

straw-colored fluid. After another month the fluid was found at the fourth aspiration, clear as before. The condition of the patient improved; her temperature was normal for some weeks, and the degree of cardiac displacement was less marked. The succussion splash and coin sound disappeared, and the patient was allowed to go to the country. This case seemed to be one of pulmonary tuberculosis. The left lung was involved at the apex and the history was in favor of such a view. The opthalmo-tuberculin reaction, however, was negative even with the stronger solution. There has been no sputum, and the improvement was so favorable with a pleural exudate remaining serous so long that we hoped at least that another cause might lie at the bottom of this case. She returned, however, two weeks ago with fever and hoarseness. The coin sound and splash were again heard and the laryngologist describes an ulceration of the larynx of tuberculous nature.

Case 4: Another case of interest from the standpoint of the cause and course occurred in the practice of Dr. H. S. Shaw with whom I saw the patient some years ago. He was an architect, 22 years of age, whose history, both family and personal, contained no statements pointing to tuberculosis. Awakening on a Sunday morning in Oct., 1905, he felt pain in the front of his chest on the right side. He was a member of a church choir, and took his place in the services that day, but on his return he took to his bed, yet without cough or dyspnoea.

On the following day (Monday) after a good night, he desired to go down to business, but he was persuaded to have medical advice. When first examined the patient was afebrile, with a pulse of 80 and respirations of 15. The heart was displaced to the left, the right chest was unusually resonant, and amphoric breathing with the bruit d'airain (coin test) positive. There were no signs of fluid at any time. The recovery was most satisfactory, and in about three weeks he was allowed out. The patient has been under Dr. Shaw's observation and has had no recurrence. There have been no signs of pulmonary disease of any kind; he is well nourished, and in the full enjoyment of health.

Case 5: G.W., aged 18, stenographer, stated that on the evening of the 11th Nov., 1906, he was seized with a severe pain in his chest, increased by respiration and cough, and attended by marked dyspnoea. The family and personal history gave us no clue to a tuberculous infection or tendency. The patient admitted having taken some violent exercise some days before, running some miles.

He was a youth of very fair complexion and of slender build, weighing 125 pounds. He lay upon his back in bed, any change of position giving him severe pain in the right axillary and lower costal regions.

The typical features of a right-sided pneumothorax were clearly made out. For the first few days signs of fluid were absent. Fluid was demonstrated, however, quite early in this case, both by the ordinary methods of examination and by the fluoroscope when examined under the X-rays in the sitting position. The upper line of the fluid was horizontal, broken only by a wave-like shadow running across it with each heart-beat. A similar yet higher wave shadow was produced in shaking the patient.

The course was constantly favorable; pain lessened, the dyspnoea disappeared; there was no fever, and the amount of pleural effusion was never embarrassing. There seemed, therefore, no cause for interfering. After about five weeks in the ward, he was discharged on the 22nd of Dec., practically free of physical signs of disease. He was examined again on the 2nd of June, 1908. At that date, 18 months after the onset of the illness, he remarked that he was feeling well, and had not been ill, with but one exception of two weeks with a "cold," since the autumn of 1906. He looked thin, of rather high color, and weighed about the same as when in the hospital, (120½ lbs.).

Case. 6. Again this condition was discovered in a man of 41 years of age, apparently healthy. He gave no account of loss of weight or failing strength, of strenuous effort, nor of unusual laughing or coughing. The thoracic organs had always been healthy, so far as the patient knew. On getting up on the morning of June 27, 1902, he did not feel quite himself, and while out for a walk he felt very weak. On returning to his house something "gave way" in his chest, and shortness of breath seized him and he fainted. On recovering consciousness the dyspnoea persisted.

On examination in July, when first seen in consultation the heart was displaced to the right, the percussion note over the left side was hyperresonant, and on auscultation the breath sounds were very poorly heard. There was no succussion and the coin sound was absent. Later, however, faint Hippocratic succussion was made out but the coin test and amphoric breathing were never present under my observation. The fluoroscopic examination was interesting, although made late in the course of this case, as it showed a characteristic horizontal line at the lower part of the left lung area—interrupted by a slight wave synchronous with each heart beat.

The patient made an uninterrupted recovery. There was never any fever. He was seen again, about six years later, Feb., 1908, when he looked as if in the best of health. He has had no recurrence nor any symptom pointing to disease of heart, lungs, or pleura.

Case 7. The onset of symptoms of pneumothorax while the patient is in bed, finds another illustration in the following instance. A young

man, 24 years of age, Laboratory Assistant in the Royal Victoria Hospital, went to bed on Sunday evening, April 19th, 1908, in good health, after a walk of about two hours, which did not give him noticeable fatigue. He awoke on the following morning, about two o'clock, with a sharp pain in the left side of the chest, near the heart. It was stitch-like and recurrent, and associated with cough. In a day or so he expectorated mucopurulent dark-tinged sputum. Within a few days the pain had entirely disappeared. The signs of pneumothorax on the left side, suspected from the first day, were clearly made out on the second examination. Amphoric breathing and the coin test were present, but Hippocratic succussion was never heard. There was no severe dyspnoea as in our previous case. Tuberculosis was not suggested by either his personal or his family history. He had been a pathological laboratory worker in Scotland, and since coming to Canada about two years ago, he has been employed in the pathological laboratory of the Royal Victoria Hospital. It was thought that the dark tinge to be seen in the sputum could be attributed to the dust around the pathological department where considerable reconstruction was going on. It was not due to blood. The sputum examined several times was always negative to the stains for tubercle bacilli. The signs were such in this case that one was led to conclude that only a partial pneumothorax existed. The heart was but little displaced to the right as shown by the fluoroscope and skiagraph although the præcordial dulness was completely lost. Then again, there was an area of diminished resonance on the left, passing out beneath the left pectoral muscle toward the axilla. By the fluoroscope one could see in this position a shadow of triangular shape with its base upon the cardiac shadow and its apex pointing toward the left axilla. With the pulsations of the heart, the boundaries of this triangular shadow moved, in fact, pulsated. An explanation of this shadow has not been decided upon. It disappeared with accompanying signs of the pneumothorax. From its position and shape the pulsation and the density of shadow, one might think of an intralobar-encapsulated pleural effusion, which was influenced either directly or through pleuropericardial adhesions by the heart's action.

The coin sound was present in this case having a limited area over which it could be heard. By the lines marking the area of the positiveness of this test, we have a further suggestion in favor of a partial pneumothorax (diagram).

This patient progressed favorably, and when last examined on the 5th inst., (June '08), heart dullness was normal. The impulse was plainly felt below the left nipple in the 5th intercostal space, and there were no signs remaining of the condition above described.

The etiology of this rather rare thoracic condition has always attracted much attention, and as we all know, tuberculosis claims its full share in percentages, ranging from seventy-eight to ninety. Five of our cases belong to that group classified as "Spontaneous pneumothorax." We might call them "Spontaneous non-tuberculous pneumothorax" cases. Non-tuberculous these cases may be, and doubtless are, in most instances, yet at the same time we are not free to go so far as Fussell and Riesman, who, while explaining these spontaneous cases by emphysema argue that if emphysema existed it was moderate and not possible of diagnosis, and as a moderate degree of emphysema in adults cannot be considered a sign of disease post mortem, they conclude "that pneumothorax can occur with a practically healthy lung from rupture of an emphysematous vesicle."

The exception one might take to this argument first is that a "practically healthy lung" is one capable of performing the natural function of respiration, etc., and able to withstand coughing, sneezing and ordinary effects of lifting, and one certainly not giving out or rupturing at any point during the quiet hours of sleep; while on the other hand, an emphysematous vesicle is quite as much a sign of disease as an emphysematous lung, the difference being one only of degree, and the danger, doubtless, varying accordingly.

In looking over the cases forming the foundation of this paper, five of which are distinctly those of spontaneous pneumothorax, three doubtless occurred while the patients were in bed, Nos. 1, 4 and 7. In Case 4, the patient "felt pain" in the chest on awakening in the morning," and in Case 6, "the patient did not feel *himself* on getting up in the morning." This form of pneumothorax seems to be first experienced, while in bed or on getting up, as above described, in several parallel instances, and while the pleural opening may arise during the quietness of sleep, a more reasonable explanation might be found in the suggestion that the process is a slow one, the opening small and possibly, at first, valvular, and the escape of air and the collapse of the lung alike hindered by pleural adhesions. The original precipitating cause, a sneeze, a sudden strain, a long walk, a run of several miles, hours before having initiated the process which slowly develops during the hours of sleep.

The four heads under which Zahn includes those cases arising from a solution of continuity of the pulmonary pleura without purulent inflamation are:

(1) Pneumothorax from rupture of an emphysematous vesicle:
(2) Those due to rupture of an interstital pleural bleb;
(3) Those due to tearing of the pleura;
(4) Those due to atrophy of the visceral pleura.

When one considers any or all of these conditions from the clinical standpoint, one must conclude that any one and all of them may exist in those apparently healthy, and yet a condition favoring pneumothorax is present.

To draw conclusions from this small group of cases, is not justifiable, yet when compared with a larger group such as that reported by Fussell and Riesman already quoted, one finds these common characteristics:

1. Spontaneous pneumothorax occurs in healthy individuals—mostly young men.
2. The symptoms often begin in the night or early morning.
3. There is usually no formation of fluid.
4. Febrile reaction is rare.
5. The patients usually recover.

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OPSONIC TECHNIQUE.

BY

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During the last few years much has been written regarding the vaccine treatment of bacterial infections. Very little, however, has been said about the preparation of these vaccines and their mode of administration. It is my purpose to give a concise outline which may enable the student or practitioner to apply this method of treatment in general practice.

Wright advanced the theory that there was something in the blood serum which so acted upon invading bacteria as to render them more susceptible to phagocytosis. This substance he called "Opsonin," and the sensitizing power of the serum of an infected individual compared

with that of the normal subject as revealed by the phagocytic count was called by the same investigator the "Opsonic Index."

Now, it is our aim to stimulate, by means of this therapeutic agent (vaccine) the production of opsonins in the blood an thereby enable the polymorphonuclear neutrophils to ingest the infecting organism in larger numbers. This we do by obtaining the organism in pure culture, devitalizing the washings from the medium, and, after standardization and control, reinoculating this emulsion into the subcutaneous tissues of the patient.

But, before proceeding, I would here outline some experiments to substantiate the theory as to the existence of the so-called opsonic elements.

Exp. 1.—Take equal quantities of washed blood corpuscles, bacterial emulsion and normal saline solution, incubate after thoroughly admixing for fifteen minutes at 37° C. Then prepare films and stain. We find that no bacteria, or at least very few, will be ingested by the leucocytes (spontaneous phagocytosis).

Exp. 2.—Take equal quantities of the same washed cells and emulsion, but substituting blood serum for the saline solution, and we find the white cells containing numerous bacteria.

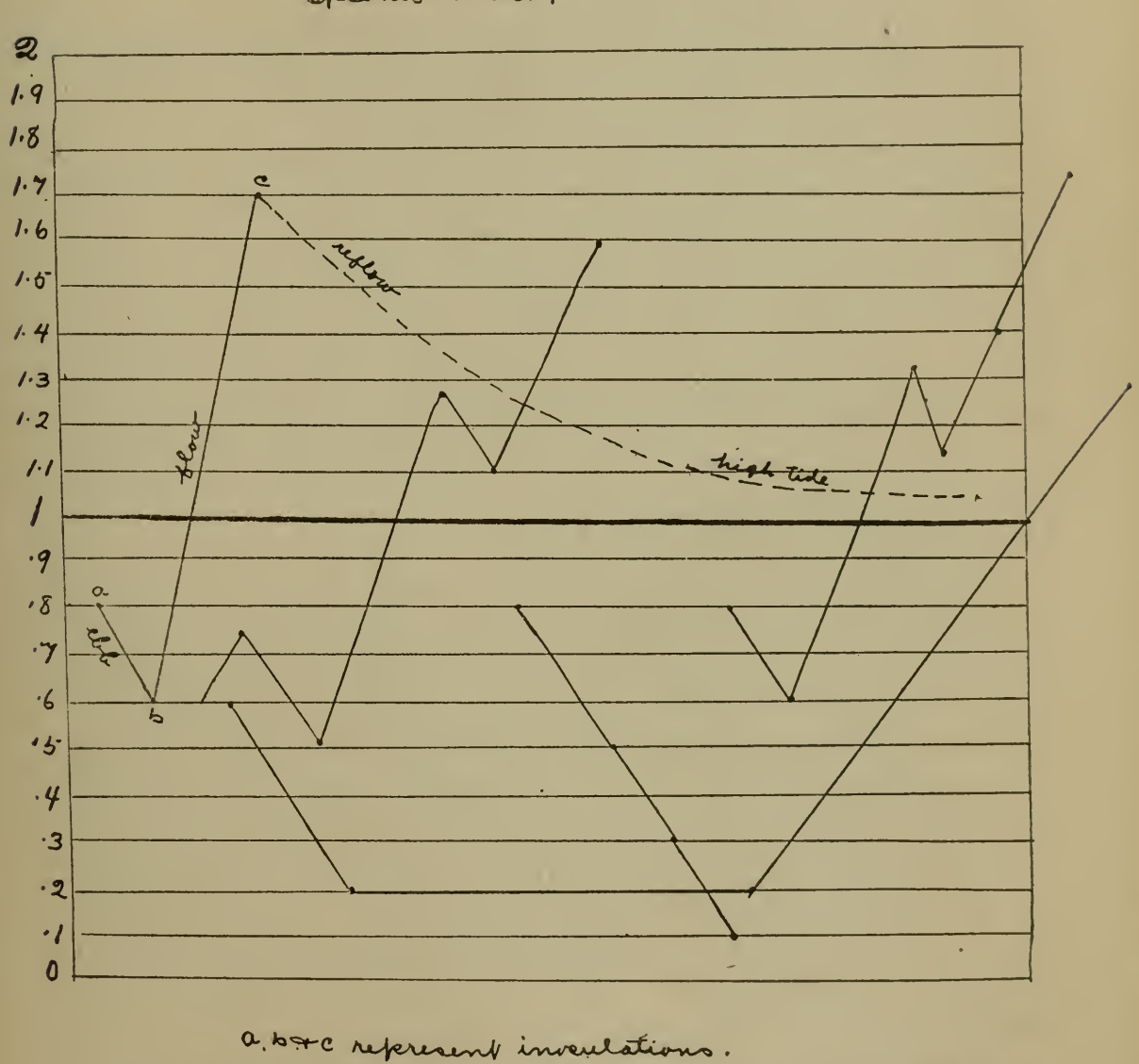
Exp. 3.—In a similar manner prepare, first, slides employing the serum expressed from an infected area; secondly, using serum obtained from the freely circulating blood of the same individual, and we find in the first case very few bacteria ingested (deopsonized serum); in the second, a much more extensive phagocytosis.

Although many infections have been treated by vaccine inoculation, to simplify my explanation, I shall deal with one only, taking for example, staphylococcus aureus, the infecting agent in furunculosis. We cleanse the surface of the lesion with alcohol, puncture with a sterilized needle, transfer the expressed pus to a plain agar slant and distribute evenly over the surface of the medium, in order, if possible, to secure a sufficiently abundant original growth for the preparation of the vaccine. The tube is then incubated for from twelve to eighteen hours, the growth is washed off with .85 per cent. saline solution (about six c.c. being sufficient for one tube). This is decanted into a sterilized test tube, shaken for ten minutes to disintegrate the clumps, and finally, after withdrawing specimens for standardizing purposes, the emulsion is devitalized in a water bath at 60° C. for one hour. Control cultures are then made and the vaccine diluted to a proper strength for use, the usual standard being five hundred millions to the cubic centimetre. The vaccine is best kept in 50 c.c. brown glass bottles with paraffined

rubber caps, one quarter per cent. of pure lysol being added as a preservative.

Standardization of the Vaccines.

After trying many methods, Wright hit upon the following: Using a fine graduated capillary pipet draw up equal volumes of (*a*) blood from the finger, (*b*) emulsion before it is devitalized, together with



(*c*) two volumes .85 per cent. saline solution as a diluent. Expel the contents on a slide, mix thoroughly, and prepare films in the usual way. After fixation and staining a count is made of five hundred red cells, noting in a separate column the number of organisms in the various fields covered.

A comparison of the two tables, on the basis of the known number of red cells per cubic millimeter of blood, gives at once the number of

organisms per cm. of the emulsion. Thus, if in counting five hundred red cells, one thousand cocci are met with in the same fields, the vaccine will be known to contain ten millions organisms per c.m., or ten thousand millions per c.c. In diluting such a vaccine, two and a half c.c. of the devitalized emulsion should be added to forty-seven and a half c.c. of autoclaved .85 per cent. saline, with the addition of 125 cm. of pure lysol. One cubic centimter of the diluted vaccine then contains five hundred million organisms.

When we wish to give an inoculation, the needle of our syringe is thrust through the rubber cap and the required amount withdrawn, leaving the remaining contents quite uncontaminated.

To take the index, in other words, to estimate a patient's resistance to his infecting organism, we require: 1, the patient's serum; 2, Normal serum; 3, washed corpuscles; 4, bacterial emulsion.

1. We take the patient's blood, for which we have special glass capsules made from tubing over the blow pipe. Bandage a finger firmly to produce a hyperæmia at the tip. Break curved end of the capsule; draw out the straight end over a pin point flame, break short, and with this prick the bandaged finger on its dorsal surface just above the nail, and receive the blood into the end by capillary attraction. Centrifugalize this and obtain the clear serum.

2. Similarly obtain the normal serum.

3. To obtain the washed corpuscles, put about 2 c.c. of a solution containing equal parts of .85 per cent. sodium chloride and 15 per cen. sodium citrate solutions into a small tube. Prick a bandaged finger, drop in ten to twelve drops of blood, shake gently and centrifugalize. We find the heavier red cells at the bottom, the "buffy coat" or blood cream composed chiefly of white cells overlying them, and the clear fluid above. Syphon off the supernatant fluid, refill with .85 per cent. saline and repeat the operation of mixing, centrifugalizing and syphoning, being very careful not to disturb the corpuscles. In centrifugalizing, it is important not to so prolong the operation as to compact the surface layer of white cells. The tube should then be placed in a slanting position in a sand tray.

4. To prepare the bacterial emulsion, put a small loopful from a culture of staphylococcus aureus in a watch glass containing .85 per cent. saline. Thoroughly mix by means of a short capillary pipet and rubber teat held at right angles to the watch glass, the clumps being broken up in the process of aspiration and expulsion. Finally, draw a quantity into pipet, remove teat, seal the capillary end and place in sand tray in line with the washed corpuscles and sera. In the case of the serum tubes the hooked end is broken off with a scissors or by a quick evulsion

with a knife blade thrust within the curve. We next require several capillary pipets of approximately the same calibre (also made from tubing) upon each of which a volume is marked with a blue pencil. Into one of these pipets, fitted with a rubber teat, a volume each of (*a*) the patient's serum, (*b*) washed corpuscles, and (*c*) emulsion, are drawn, a small bubble of air being admitted between the first and second volumes. Expel and thoroughly mix on a glass slide, reaspirate the whole into the body of the capillary tube, seal end in flame and pass quickly into the incubator at 37° C., noting the time.

Prepare a control tube employing the normal serum. When the period of incubation, fifteen minutes, had expired, the sealed end of the tube is broken, the contents expelled, thoroughly mixed and films drawn according to method described. The control tube is similarly treated. The films are then stained by Leischman's method, and, after locating the leucocytes with the low power, a count is made, with the oil immersion of the bacterial content of one hundred polymorpho-nuclear leucocytes in each film.

The following example of a count is self explanatory:—

Control.—100 leucocytes contain 800 cocci, *i.e.*, an average of 8 cocci per cell, equals normal, or 1.

Patient's serum.—100 leucocytes contain 600 cocci, or an average of 6 per cell—equals six-eighths of normal, or .75. Opsonic Index.

It has generally been found that the subjects of infection have a subnormal immunity index. The above example is drawn to illustrate this point. Following inoculation, if frequent examination of the blood could be carried out, there would generally be found a further depression in the opsonic curve (negative phase) followed after a variable period by a rise considerably above the normal (positive phase). If further inoculations are unnecessary, the opsonic curve tends gradually to approach the normal line, but where the desired immunity has been conferred, the reflow generally stops short, at or above the normal line. Wright has described this series of phenomena as the ebb, flow, reflow and high tide of immunity. Many variations, however, are met with in practice, which are sufficiently explained by the following terms:— Pregenative rise and prolonged negative phase. Occasionally, also, there would appear to be a suppression of the negative phase. Where inoculations are repeated, one looks in certain infections for a cumulative rise in the direction of a positive phase. If, however, inoculations are ill-timed, one may engraft a negative phase, upon a negative phase, a phenomenon which may account at all events for some of the unfavourable and even disastrous results which followed the earlier exhibition of tuberculin.

The technique in connection with the estimation of the opsonic index for tubercle bacilli, differs somewhat from that outlined above, owing to the cultural difficulties associated with the bacilli. Pharmacists have placed on the market a thick emulsion of devitalized tubercle bacilli from which a bacterial emulsion for index estimation is made by transfering a few loopsful to an agate mortar and thoroughly grinding in 1.5 per cent. saline, added drop by drop. This emulsion is then centrifugalized to dispose of the clumps and the opalescent supernatant fluid syphoned off and employed as the bacterial emulsion. Before proceeding with the operation further, it is advisable to stain a film from this emulsion by the ordinary Ziehl-Neilson method to test if clumps be present. Films prepared for tuberculo-opsonic counts are best fixed in Zenker's solution, stained with Carbol Fuchsin and decolorized in two per cent. sulphuric acid, employing an alkaline methylene blue as a counter stain. The formula for the latter is as follows:—Methylene blue, one gram; sodium bicarbonate, one gram; thoroughly grind, and add 400 c.c. water.

Method of Administering Vaccines.

Where practicable, it is desirable to work out the opsonic index of the patient to the particular organism involved, before administering the vaccine. Where, however, immediate treatment is indicated, a specimen of finger blood should be secured for index purposes at the time of the primary inoculation. Subsequent to inoculation, opsonic determinations should be made frequently in order to fix the dosage. If the negative phase is severe or prolonged, the quantity administered at future inoculations should be diminished. On the other hand, where the negative phase is lacking and the positive phase but slight, the dose should be increased.

Having once determined accurately the degree of reaction, future indices are not necessary, providing the same vaccine is used and progress is favourable.

Re-inoculations should be undertaken, usually, in the case of staphylococcus infections, every six to ten days. In the case of tuberculin, it is maintained by Wright, that it were better to make each inoculation a separate event, as, with few exceptions, a cumulative action in the direction of a positive phase can now be secured.

Owing to the different method of standardization in the case of tuberculin, the dosage has not been given in the above table. Assuming the case to be afebrile, the primary dose for adults should not exceed 1-1600 milligram, and for children 1-2500 to 1-3000 milligram. In no case should constitutional symptoms ensue, and it is much better

to err on the side of small dosage with an inadequate opsonic reaction, than to run the risk of inducing a hyper-susceptibility which might necessitate the discontinuance of the inoculations for a considerable period. Experience has shown that the maximum dose of 1-800 milligram is best borne by the subjects of renal and vesical tuberculosis, but in cases of tendon and joint infection, lupus vulgaris and localized afebrile pulmonary lesions, there is little or nothing to be gained by increasing the dosage above 1-1600 to 1-1000 milligram.

In diluting tuberculin, the following method is satisfactory. We obtain Koch's T. R. tuberculin in 1 c.c. containers, representing 10 milligrams of devitalized, dried and finely ground tubercle bacilli, and proceed as follows.

1. Immerse the container for ten minutes in pure lysol, wipe with a sterile towel, open, and decant into a standard vaccine bottle containing 39 c.c. of 0.85 per cent. saline solution, which has previously been autoclaved; rinse the container with 1 c.c. of fluid from the vaccine bottle; add to the whole 0.25 per cent. of pure lysol, or 100 milligrams. Adjust the rubber cap and seal as before described. 1 c.c. of this first dilution contains 0.25 milligram of tuberculin. This dilution is used as "stock."

2. After thoroughly shaking withdraw through the rubber cap by means of an accurately graduated syringe fitted with a hypodermic needle 1 c.c. of this "stock" dilution, and transfer it to a second vaccine bottle containing 49 c.c. of autoclaved saline solution, lyolize and seal as before. This solution constitutes "*Tuberculin No.* 1," 1 c.c., of which contains 1-200 milligram.

3. From this second dilution withdraw by the same means 10 c.c. and add it to 30 c.c. of autoclaved saline solution contained in a third vaccine bottle. Lysolize by adding 75 milligrams of pure lysol. This third dilution constitutes "*Tuberculin No.* 2," 1 c.c., of which contains 1-800 milligram of T. R. tuberculin.

For information as to culture media, period of incubation, etc., the following table will form a guide.

Organism.	Media.	Age of culture: hours.	Devitalizing temp. one hour at:—	Dosage in millions.
Staphylococcus	Plain agar	12 to 18	60° C.	100 to 500 m.
Streptococcus.	Plain agar	24	58° C.	10 to 20 m.
Pneumococcus	Serum	24	58° C.	50 to 100 m.
Bacillus coli communis	Plain agar	8	54° C.	50 to 100 m.
Bacillus pyocyaneus	Plain agar	12	54° C.	50 to 100 m.
Gonococcus	Hydrocele-agar	6	60° C.	10 to 20 m.
Meningococcus.	Blood agar	18	60° C.	10 to 20 m.

With regard to autogenous vaccines they have been found of greatest importance in the treatment of acne indurata and coccogenous sycosis.

Stock vaccines may be used to advantage for primary inoculations in cases of furunculosis, impetigo and carbuncle, but for subsequent treatment, personal vaccines should be prepared if one looks for the best results.

The literature of this subject has now reached such proportions that I have taken the liberty of appending references to but a few papers of recent data, bearing upon the theory and practice of this form of theraphy.

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A NOTE UPON THE CLASSIFICATION OF TUMOURS.

BY

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It may be known to those here present that a few years ago I published a paper upon the classification of tumours based upon the embryogeny of the different tissues.* That classification, I confess, was somewhat elaborate in appearance, although simple in principle, based upon the fact that each primitive cell layer gives rise to tissues of two orders, to denote which I was compelled to introduce a new set of terms. I did not like to do this, nor was it my idea that these terms should in any way attempt to replace in general practice those honoured by long use. Nevertheless, mere length of use has brought about such vagueness in the employment of the latter that for scientific and exact purpose they have very largely lost their primitive value. These terms notwithstanding, it is some satisfaction to see that that classification is coming to be accepted by writers of systemic works on pathology as the most rational so far proposed. To-day I wish to call attention to what I regard as a further advance in our conception of the relationship of the different forms of tumour which permits us to make in some respects a still more exact classification.

It may be remembered that in my older classification I divided neoplasms into two great groups of the *teratomas*, (the tumours due to the

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development within the body of one individual, of tissues and parts belonging to another individual) and the *blastomas* (or tumours due to the aberrant growth in the organism of one individual of cells and tissues of that individual himself. So far as it went this division was fairly satisfactory: it left, however, a certain group of tumours in the debatable ground. I refer more particularly to that group which has been studied so ably by Wilms, the group to which he has given the name of "Mischgeschwülste," or mixed tumours, and to that section of the Mischgeschwülste to which the name *embryoma* has been applied. The type example of this growth is to be found in connexion with the kidneys of children and young individuals. Here there develops a cell-mass formed of a mixture of several distinct elements. There may be striated and plain muscle, gland tubules of renal type, cells of connective tissue type, of a sarcomatous type, and, very rarely, bone cells or cartilage cells have been encountered. Wilms has pointed out very clearly the mode of origin of these tumours. The anlage of the glandular cortical portion of the permanent kidney is of mesoblastic origin, and at a very early stage in the embryo this "nephrotome" is cut off or differentiated from the myotomes, or cell masses, lying on either side of the median line which will eventually give origin to the main musculature of the trunk axis and to the bone and cartilage of the vertebral column. Now, there have been cells at a yet earlier stage which have been the ancestors both of the future muscle cells and of the glandular portion of the kidney cells, and these ancestral cells have, by progressive multiplication, given origin to both. We can best comprehend the tumours in question by supposing that in the course of development, one or more of these ancestral cells has become snared off, or has come to occupy an unusual position with regard to its fellows, so that its development cannot follow the normal line. We may suppose that such a cell becomes carried along into the developing future kidney and that in time that cell begins to grow, and in growing retains the properties and the potentialities given to it at its origin. Such a "cell-rest," to apply Cohnheim's term, in its proliferation will tend, therefore, to produce *both* muscle cells and renal epithelium, and the tumour derived from it will of necessity be of a mixed type.

We encounter mixed tumours of a similar nature in several parts of the body—in the parotid, in connexion with the genital tract and so on—and it is along these lines that they gain their simplest explanation. Where are we to place these tumours? The cells that give origin to them have not the power, even under the most favourable circumstances, to reproduce all the different forms of tissue; they have

not the potentiality to form, even in the most favourable circumstances the complete individual. And, on the other hand, there are no signs in these tumours of a combination of tissues derived from all three germinal layers. There may, indeed, be only the representative of one layer, the mesoblast. But we have in this order of tumour two or more distinct forms of tissue, in addition to the connective tissue stroma. They are not teratomas, they are not typical blastomas.

It is here that the terminology introduced by the embryologist, Barfurth, in his "Handbuch der Embryologie," appears to me to be of singularly high value and to afford the basis of an adequate classification. Barfurth has pointed out that, following the development of the typical ovum, one recognizes a first stage in which each individual blastomere or product of the cell division of that ovum may be shaken apart from its fellows, as has been done by Driesch, Roux of Breslau, E. B. Wilson, Morgan, Jacques Loeb, and many others, and each cell so separated has the power of giving origin to a complete, even if somewhat dwarfed individual. Such cells he terms *totipotential.*

Following upon this stage he notices that as the cells of the dividing ovum develop into the different germinal layers these cells no longer possess the individual power of giving origin to the complete individual. But, obviously, in this next stage the individual cells of the primitive streak region in differentiating into epiblast, mesoblast, or hypoblast, according to their position become the ancestors not of a single tissue, but of various groups of tissues. If epiblastic in position they give origin to the cutaneous, glandular and nervous elements; even at an early stage they give off cells which become mesoblastic, and so originate members of the group of what we term familiarly the connective elements. Nor is this capacity to give origin to more than one form of tissues confined only to the familiar three layer period. The cells may be regarded as retaining this capacity throughout the whole of what Ballantyne has termed the germinal period of the embryo, until, that is, they become so far differentiated by division and relative site that they give origin to the matrices and anlagen of the different organs of the body. We have already given an example of this type of cell in what we said regarding the primitive cells of the myotomes. Such cells Barfurth terms *pluripotential.*

With progressive development, once the anlagen of the different tissues have been laid down the cells composing these become more and more differentiated, and now those cells have the capacity to produce one type of tissue only: they becoming *unipotential.*

Consideration will show that tumours group themselves into three great groups exactly corresponding to those three groups of cells laid down

by Barfurth. As regards tumours derived from the parasitic growth within the body of one individual, of the products of a separate ovum—twin teratomas—and "filial" teratomas derived from aberrant growth of cells of the germinal type, the products of the reproductive organs of the individual, the cells from which these tumours originate are most simply regarded as being totipotential. It is a far less simple conception to suppose that such tumours are derived from the segregation of a group of cells derived from all three primitive layers. That conception has now been wholly given up.

Similarly may we regard the whole group of mixed tumours of the Wilms type, the embryomas, as derived from pluripotential cells. If we speak of the first class as *teratomas* we may conveniently refer to these as *terato-blastomas,* to differentiate them from ordinary tumours formed of one specific type of constituent with a frame work or stroma of indifferent connective tissue and blood vessels. Such tumours we must regard as derived from unipotential cells. These we may continue to speak of as the *blastomas.*

This method of regarding tumours appears to me both simple and straightforward and helpful in dispersing the doubt and muddle that has existed regarding these transitional types and their relationship.

We may thus classify new growths as follows:—

I. *Teratomas.*—The products of the growth within one individual of what is primarily or potentially another individual.

(1) *Twin or germinal teratomas.*—Due to the growth within the tissues of the one individual (the host) of the products of another fertilized ovum, coæval with the ovum giving origin to the host.

Example: Fœtal inclusions.

(2) *Filial Teratomas.*—Due to the growth within the tissues of the one individual of the products of a *totipotential* cell derived from that individual.

a. Blastomeric Teratoma, due to the segregation of a (totipotential) blastomere in the early embryonic or "germinal" period (Ballantyne) and subsequent growth.

Examples: Three-layered epignathus and congenital sacral teratoma.

b. Germ-cell teratoma, due to independent, aberrant growth of a totipotential germ cell at any period after the germ cells, as such, become segregated from the somatic cells of the embryo, and before the nuclear reduction processes take place which lead to the production of oöcytes and spermatozoa.

Examples: Ovarian and testicular dermoids.

II. *Terato-blastomas.*—The products of growth of a segregated pluripotential cell of the individual.

Examples: Two-layered and simpler forms of epignathus and "congenital sacral teratoma"; also "Mischgeschwülste" (embryomas of Wilms) of kidney, parotid, etc.

III. *Blastomas.*—The products of growth of a segregated unipotential cell.

(1) *Teratogenous,* due to continued aberrant growth of unipotential cells of one individual (the embryo, or, rarely, of a teratoma) within the tissues of the other, (the parent).

Examples: Placental moles and chorio-epithelioma malignum. Carcinomas, etc., originating in ovarian dermoids.

(2) *Common,* derived from unipotential cells of the host.

Examples: The ordinary neoplasms formed of one type of tissue—fibroma, adenoma, etc., sarcoma, endothelioma, carcinoma, etc.

It is these blastomas that can be subdivided according to my previous classification into the *lepidic* or lining membrane tumours (lepidomas) and the *hylic* or matricial tumours (hylomas), whether of epiblastic, hypoblastic or mesoblastic (mesothelial and mesenchymatous) development.

IV. *Blastomatoid growths.*—There is yet a fourth class of new growths so-called, not coming into any of the above categories which remains to be noted. I refer to those conditions in which not individual unipotential cells of a tissue, but the whole tissue undergoes a local overgrowth, resulting in the formation of tumours that are, (1) ill defined, (2) tend to be diffuse or multiple, and (3) to retain in their structure the ordinary tissue relationships. These are the conditions of idiopathic "Riesenwuchs" of some authorities. They are commoner and more varied than, I think, is usually imagined. Examples of such conditions are:—Fibromatosis (multiple fibroids), lipomatosis, chondromatosis (multiple ecchondroses) and osteomatosis (multiple exostoses), myelomatosis (myeloma multiplex), gliomatosis, lymphomatosis (including lymphatic and myelogenous leukæmia), etc. Whether the termination "omatosis" should be applied to these conditions is debatable. It is that which, apart from this recognition of the distinction here drawn between these conditions and the blastomas proper, has hitherto been employed to designate the members of this class and this so generally

that to introduce another terminology seems a work of supererogation. Such growths form a link between the tumours proper and the hypertrophies.

THE LATER HISTORY OF CASES OF "SLEEPING SICKNESS."*

BY

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From the title of my paper, it would seem that an apology is due for attempting to speak on such an out-of-the-way disease; one that is, apparently, so foreign to the pathologcal conditions native to Canada. But the disease is of interest to Medical men, no matter in what part of the world they practise, since sleeping sickness or, better, human trypanosomiasis is one of the best studied of the diseases caused by protozoa. The pathological characteristics of this group of parasites have of late years received the greatest attention. Protozoa are already known to cause serious disease amongst animals and men in Canada and it is expected that further investigation will show that still other diseases are due to them.

Amongst the protozoan diseases of Canadian animals let us mention the hæmoglobinuria, Texas-fever or red-water in cattle, and the recently introduced dourine of horses; both of these are serious conditions.

In man, diseases with which all are familiar, and which are probably caused by protozoa, are the exanthemata and syphilis. Therefore, any facts concerning the nature of any protozoan disease, in so far as by analogy they may be capable of throwing light upon these important allied conditions, are of interest to us as Canadian practitioners.

Besides being caused by parasites belonging to the same division of biology, most of the protozoan diseases have clinically something in common. For example, all, or most of them, have more or less characteristic rashes. Like syphilis, human trypanosomiasis is character-

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* This paper was presented in the Section of Laboratory workers at the 1908 meeting of the Canadian Medical Association.

Our thanks are due to the Government of the Free State for instructing their agents to reply to our questions and for transmitting those replies to us.

We would also acknowledge similar assistance received from many of the Missionary Societies.

Where many have been so kind, it seems unnecessary to thank individuals in particular, yet our special indebtedness should be expressed to those mentioned below;—

Amongst the Missionary Societies,—Rev. Mr. Kenred Smith, Rev Mr. Whitehead, Rev. Mr. Sutton Smith, Father Gabriel.

Amongst the Congo Free State Officials in Africa,—Monsieur l'Inspecteur d'Etat Mahieu, Dr. Pollèdro, Mr. C. Mallet, Dr. Grossule, Monsieur le directeur des prisons àBoma.

ized by an extraordinary faculty of remaining latent for years in an infected patient; after a healthy, sturdy middle-age, not infrequently old men may suffer the penalty of a luetic taint contracted in youth. In the same way, persons infected with trypanosomes may remain apparently healthy for many years, only to die of the disease finally. Many cases are on record in which individuals have died of "sleeping sickness" after an absence of from two to eight years from a locality where the disease might be contracted (1). On the other hand, it is worth remembering that there may be no such latent period and that all the symptoms of acute trypanosomiasis may appear after an incubation period so short as four weeks (2), or as in a case which was recently in Montreal, in as little as three weeks (3).

The course of the disease itself is extremely varied. It may be relatively acute and the patient may die within a few months from the known date of his infection. On the other hand, many persons known to be infected have continued to live for three or four years without treatment. The disease usually progresses steadily with increasing emaciation and weakness; occasionally periods of great improvement may occur which may last for several weeks or even months.

The disease is a difficult one to diagnose, since only in its later stages is an authoritative diagnosis possible without the demonstration of the parasite. This, unfortunately, is often extremely difficult because the trypanosomes may be absent from the blood for very long periods and the patient may often die of trypanosomiasis while the parasites are almost completely absent from the peripheral circulation. Recently, diagnosis has been made much easier through gland puncture. It was found that the trypanosomes could often be seen in the juice drawn from the enlarged lymphatic glands of cases of "sleeping sickness" at periods when the parasites could not be demonstrated by any other means (4), (5). It was also found that a general lymphatic enlargement was a very constant sign, prticularly of early cases of trypanosomiasis, and that this enlargement, unless some other cause for it were present, constituted an excellent reason for considering trypanosomes to be present (5). By this means of examination, it is possible to detect cases of trypanosomiasis at a very early period, and it was thought that by observing patients whose disease was thus diagnosed, it would be possible to determine the duration of the various stages of the disease; as might be surmised from what has been said concerning the difficulties of diagnosis, information is much wanted on this point. Our methods of procedure were as follows:—

As our Expedition went through the Congo Free State, cases of human trypanosomiasis, at all stages of the disease, were observed at the various

posts. Lists of these persons were left with the white men,—missionaries, doctors, clerks, or administrators in charge of the natives whom we had examined—with the request that the date and cause of their death should be observed and reported upon to us. Lists of negroes who had enlarged cervical glands were also given for the same purpose; it had been previously found that the posterior cervical group of glands, as a general rule, might be safely taken as an index of the general glandular enlargement of those negroes affected with trypanosomiasis in the Congo Free State (5).

Our Expedition left the Congo Free State in October, 1905. The last of the lists reporting upon the condition of the natives observed by us previous to that date have just been received. As was only to be expected, the reports are far from complete. Some of the white men have failed to take the necessary care and trouble to make their reports trustworthy, others have neglected to make any observations at all, and still others have failed to reply to our questions. In many instances the natives examined by us can no longer be found. This may be because Africans frequently change their name and leave their villages, or, in some instances, because natives object to speak concerning their dead. Hence it has been necessary to take considerable care lest mistakes in identity should arise. Doubtful cases have not been considered in compiling the communication which follows, and, on the whole, it may be taken as an accurate statement of the after history of the cases with which it is concerned.

In the Congo we adopted a method of classifying our cases which, while convenient clinically, does not rest upon a precise and accurate basis. It is as follows (6): *Type A*: Cases without any definite symptoms of illness, *Type B*: cases with a few symptoms; *Type C*: Cases with marked symptoms, the most noticeable being feebleness, extreme weakness, lassitude and fever. Type C is still further subdivided, according as sleeping is, (1) absent, or (2) present. This classification brings out the fact that sleep is a rare and comparatively unimportant symptom of the disease.

It must be strictly understood that there is no strong dividing line betwees any two of these groups since one division merges indefinitely into its neighbour; but it is none the less a practical, useful classification because the cases which will ordinarily be met with by medical officials engaged upon quarantine work, or by those treating the disease, will belong to one of these divisions. Patients placed in class C are usually recognized clinically. Many of those in class B will be suspected, while others, as well as the whole of class A, will only be de-

tected after the demonstration of the parasite. These last are by far the most important classes of patients, because it is largely through their movements about the country that the disease is spread (5). Fortunately, the great majority of such persons have enlarged glands and, through the application of systematic gland palpation of all natives, it will be possible to limit their movements to a great extent. Such cases are often strong and well, and indignantly refuse to believe that they are ill.

The determination of the length of time for which each class of patient may be expected to live is, therefore, evidently important in designing and instituting any system of quarantine and segregation intended to prevent the spread of "Sleeping Sickness." In considering our statement of the duration of the disease, it must be remembered that the majority of our patients were treated under comparatively bad conditions. They had no nursing and no invalid diet. If cases are well nursed and, perhaps, treated by some of the arsenical compounds, they will live for a very much longer time, even although they are taken under care at a late and hopeless stage of the disease. Patients in an advanced stage are much weakened, and are consequently extremly susseptible to secondary infections. In fact, in the majority of the fatal cases of trypanosomiasis, the immediate cause of death is a secondary bacterial infection of some sort (6). Eighteen of twenty-six well advanced cases of "Sleeping Sickness," in which sleep symptoms were present (Class C2), died within from one to four months from the time when they were first seen; a couple of cases, which were extremely well cared for, lived for a twelve-month, and one very exceptional case, for twenty-one months. Death was observed in two other cases in a little over one month after the commencement of sleep symtoms.

Eighteen natives belonging to Type C 1,—cases with well marked disease but no sleep symptoms, were followed; more than half of them died in between three and six months' time. One has lived for eighteen months without treatment.

Only eight cases belonging to Type B,—patients with slight symptoms, have been continuously observed. One of them died in less than nine months; the majority have died in about a year's time; one case in forty-one months.

One hundred and two natives belonging to the Class A,—those with no evident signs of disease, have been kept under observation. Of these, four died of intercurrent infections (pneumonia and pleurisy) in six months or less; thirteen died of sleeping sickness in from eleven to fourteen months, three others in forty months, forty-nine at intermediate periods. Thirty-six patients were still alive when they were

last heard of; twenty of these thirty-six patients had lived for over thirty months after their infection was first observed, and one for forty months.

It has already been stated that a general enlargement of the lymphatic glands was found to be a constant symptom of human trypanosomiasis. It has also been stated that, as a rule, the state of the posterior cervical groups might be taken as an indication of the degree of this general enlargement. From an examination of some six thousand natives in the Congo Free State, it was postulated that every negro should be suspected of trypanosomiasis who shows such an enlargement of the posterior cervical glands (5).

This observation has been supported by work done in Uganda(1), in Sierra Leone (7), in parts of the Congo (8) which were not visited by us, and recently by Dr. Allan Kinghorn (9) in Northern Rhodesia. Dr. Kinghorn palpated 9,005 natives living in an area where sleeping sickness is not endemic and from which cases are stated to be absent. He found five persons with + (see below) glands; of these, three were found to be infected with trypanosomes. There were thirty-six persons with + — glands. Both the 5 + and the 36 + — persons, 41 in all, would have been chosen, detained and sent to a medical officer for diagnosis, had a system of quarantine based upon gland palpation been enforced. That means that the three cases of trypanosomiasis which a highly trained medical man found amongst nine thousand negroes might also have been selected by an individual with no knowledge of medicine. The practical scope of such a method is evidently enormous. This rule is, of course, an extremely broad one, and naturally presents many fallacies, but it has the advantage that, through it, uneducated persons may detain a very large percentage of those infected with trypanosomiasis and direct them towards medical officers for certain diagnosis. It is only through the application of some such easy means of diagnosis that it will be possible to enforce quarantine measures with the object of preventing the spread of the disease.

From our experience we were able to make a rough classification (5) of the degrees of enlargement of the posterior cervical glands and to so grade them that "+," signified persons almost certainly infected with trypanosomes; "+ —," meant suspicious persons, and "+ — —," persons almost certainly not infected. It is understood in applying this classification, that other causes of enlarged glands must be absent and that the case must be in an early stage of trypanosomiasis, since a diminution of the enlargement of the glands occurs late in the disease. For an individual to be classed as "+," it was necessary that there should be in each posterior cervical triangle at least:

(*a*) one gland whose size was estimated at 1.5 x 0.75 cm.

(*b*) several (three or more) smaller glands, the largest measuring perhaps 1 x 0.5 cm.

Groups showing less enlargement than this, but more than + — —, were classed as + —.

As "+ — —," we classed groups containing—(*a*) only one or two glands measuring 0.5 x 0.25 cm., or (*b*) many tiny, usually hard and shot-like glands, which were only just palpable.

Since we had concluded from our observations that all persons with enlarged glands should be treated as cases of trypanosomiasis until the contrary was proved, it became extremely important to determine what proportion of the persons with enlarged glands, in whom trypanosomes had not been found, ultimately died of "Sleeping Sickness." Also, since there was no means of determining whether some persons might not be infected with trypanosomes, although distinct glandular enlargement was absent, it was important, in addition, to keep under observation, a certain number of natives who had no, or only a slight, glandular enlargement in order to determine whether sleeping sickness developed in any of them.

We found great difficulty in having all such persons observed. Only 45 of our + cases have been adequately watched. Of them sixteen died or had advanced sleeping sickness in from two to forty-one months after they were first seen; the majority of these died in about a year. Two other cases which were almost certainly infected are reported as having died in twelve and fifteen months of pneumonia. The remaining twenty-seven were alive and well at periods varying from twelve to forty months after they were first seen; thirteen of them at thirty-six months.

Thirty-three + — cases have been reported upon. Ten were dead or dying of sleeping sickness within thirty-four months; three of these were dead in about a year's time, and four more before the end of the second year. An additional case probably has sleeping sickness, and only twenty-two are still living and well at periods varying from twelve to forty months later; seventeen were well at thirty-three months.

Of sixteen + — — cases, one died of sleeping sickness nineteen months later; the remaining fifteen were well at periods varying from a year to forty months from the time at which they were observed.

From the facts recited in this paper, we reach the conclusions proposed below.

The average duration of a case of human tryanosomiasis after signs of sleep have commenced is from one to four months. Of those well advanced cases with definite symptoms but no signs of sleep (Class C 1),

the duration is from three to six months. The average duration of cases with indefinite symptoms (Class B) is twelve months, and of patients apparently healthy (Class A) eighteen to forty or more months.

About one-third (10) of the cases chosen by gland palpation and classified as "+" and "+ —" died of sleeping sickness within a a year; from an inspection of the small number of cases observed, it is clear that a much larger proportion of those persons who possessed much enlarged glands ultimately died of sleeping sickness than of those whose glands were only slightly enlarged. To some small degree the rapidity of death varied directly with the degree of glandular enlargement.

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A CASE OF PARTIAL AUDITORY AND VISUAL APHASIA WITH OBJECT-BLINDNESS DUE TO AN ABSCESS OF THE BRAIN.

BY

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The comparative rareness of such cases makes, I think, a further contribution on this subject of sufficient interest to report before this Association.

The patient, J. E. H., was seen by me on the 10th of October, 1906, in consultation with Dr. C. F. Martin. He was a right-handed man of

59 years of age, married, a locomotive engineer by profession. During the previous spring and summer he had had a great deal of business and family worry which seemed to affect his general health more or less; his appetite was poor and he was gloomy and depressed.

Three weeks previous he had a peritonsillar abscess on the left side of his throat and at the same time had two small abscesses in the floor of his mouth. These all burst in about a week or eight days and he felt much better. His appetite improved, etc., for two days; he then complained of headache and nausea, but did not vomit, and went to bed twelve days before coming under observation. The headache continued to be severe. His wife noticed then, that he could not always remember names of people or objects and when peoples' names were mentioned he seemed doubtful about who they were, although he could understand fairly well everything that was said to him.

Eight days ago in making out his monthly statement he could still read and write but could not understand figures and had to get a young man to do this part of the statement. The trouble with his speech, his wife stated, had been growing worse.

His personal and family history were of no importance. On examination, his temperature, pulse and respiration were normal; he had had no convulsions. He was found to be a very well developed man with no evidence of motor or sensory paralysis. The abdominal and epigastric reflexes were absent on the right side, present on the left. The plantar showed flexion response right and left; the other reflexes were normal. The absence or relative diminution of the abdominal and epigastric reflexes on one side is in my experience of great importance in diagnosis of slight impairment as from pressure on the pyramidal tract in some part of its course. This sign is often present, as in this case, before there is evidence of Babinski's plantar extensor response, which developed in this case just previous to death.

The cranial nerves showed a mild grade of optic neuritis more marked on the left side and right homonymous hemianopsia. There was a very evident difficulty in conjugate lateral deviation to the right, possibly due ot the hemianopsia. A watch was heard normally in the left ear, but was not heard on contact on the right side. Otherwise the cranial nerves were normal.

The patient was quite conscious and apparently of more than average intelligence although not highly educated. He understands most simple commands, turns over in bed when told to, squeezes one's hand readily, bends his arm, etc., but is apt to continue one movement when the command is changed to another, e.g., he continued to bend his arm when he

was told to straighten it. He opens his mouth when told to, but continues to open his mouth when told to close his eyes; more complicated commands are not comprehended perfectly.

Spontaneous speech is clear and quite correct until he comes to a name and these he cannot remember and it makes him worry. If the name is suggested he immediately recognises it and repeats it correctly; there is no agrammatism nor dysarthria. He can repeat words and short sentences. but cannot repeat long sentences.

There is absolute alexia and word blindness, *i.e.*, reading is impossible: he cannot even spell out the letters nor does it help him to trace the letters with his finger. He cannot read numbers: writing and copying are also impossible.

There is some object-blindness although he seemed to recognise his sons, that they were his sons; he could recognise but not call them by name; when shown a pencil he could not recognise it, but as soon as he had it in his hand, then he knew what it was for, but could not name it, although he said he had used it "often enough." He recognized the name immediately when it was suggested.

An abscess of the brain was diagnosed and on account of the partial word deafness, complete word-blindness and the hemianopsia, it was located between the angular gyrus and the posterior part of the first temporal convolution. Immediate operation was advised but unfortunately either the moving to the hospital or some other cause seemed to hasten events and he sank rapidly and died 24 hours after he was first seen. We were only allowed a very partial autopsy, merely a trephine opening in the skull.

The skull was trephined ¾ of an inch below the parietal eminence so as to expose the brain over the posterior extremity of the fissure of Sylvius. The meninges and surface of the brain were slightly congested, the convolutions flattened. On incision of the cortex we came immediately down on an abscess about one inch in diameter, circumscribed but with a definite wall, containing thick, greenish, inodorless pus. As near as we could make out the abscess cavity lay in the angular gyrus and the extreme posterior part of the first temporal convolution.

Apparently we had here primarily a condition of intra-cortical sensory aphasia, the optical aphasia of Freund where the patient, owing to the fibres connecting the auditory word centre in the posterior part of the first temporal convolution with the visual occipital cortex being interrupted, would not recall the names of objects, nor persons seen, nor recall the visual image associated with names of objects or persons. At the same time spoken and written language were not interfered with.

With the gradual growth of the abscess the optic radiation became involved causing homonymous hemianopsia, and then the angular gyrus with first the loss of power of recognising numbers and later complete alexia, then partial auditory aphasia was caused as the abscess touched on the posterior part of the temporal convolution. This case has many points of interest.

It calls attention to possible sequelæ of a very serious nature of the more or less ordinary peritonsillar abscess. The septic material evidently was carried directly up the carotid to the middle cerebral artery.

Secondly, it would tend to confirm Mills' idea that the centre for numbers is distinct from the centre for words and letters,—because, in making up his monthly statement in the beginning, when the cerebral symptoms first showed themselves, he could read and write but could not work with figures. Mills would place the memory for names in a centre by itself below the auditory word centre in the temporal lobe. Bastian and Ross, on the other hand, argue that, proper names being the last acquired property of language are lost first, if the functioning power of the auditory word centre be weakened or impaired in any way. Whether the amnesia verbalis at the outset of this case was due to the impaired function of the auditory word centre owing to the partial injury, or as appears more probable to me, due to the involvement of the commissural fibres between the auditory word centre and the occipital lobe, is impossible to decide. Certainly when under my observation he could not recognise common objects until he touched them, when he immediately knew them and what they were used for, but could not name them. He recognised the name when told, however, and repeated it clearly and accurately. This is to be accounted for by the fact that stimuli coming to the auditory word centre over the more commonly used path of the auditory nerve would be more effective on an impaired auditory centre than those coming to it from the stereognostic centres in the parietal lobe.

Agraphia is not always present when there is destruction of the angular gyrus and it is especially noticeable in educated people who are in the habit of writing, the centre being called into action directly by the auditory centre; afterwards the patient is unable to read what he has written. In the present case the man, a locomotive engineer, was not accustomed to write much and one can imagine that he had to form a mental image of the word before writing it down; that is, the stimulus starting in the auditory centre went first to the visual word centre and hence stimulated the writing centre. The destruction of the visual word centre in this way would cause agraphia.

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THE MEDICAL EXPERT.

There are few occasions on which the medical profession appears to less advantage than in certain legal battles when the importance of the issue or the social status of the belligerents results in a large number of so-called medical experts being called to give their testimony. In the first place, many medical men designated experts by the press are not experts; very often in the United States—our legal processes do not appear to admit so many complications as theirs—the array of talent does not embrace the names of men known to the profession at large; the best qualified to speak are frequently not the ones chosen, and the result is that A contradicts B, C contradicts D, and the case lies exactly as before, and the medical profession is often very properly ridiculed. This is most often the case where the question is one of mental responsibility or the contrary. Everyone who has practised medicine understands just how difficult it is in such a case to express an opinion and to support it by the evidence of science. In cases of insanity, too, the best evidence we can have in everyday life is the opinion of the experienced alienist; we do not press him for his reasons, because we know that his experience of past cases is his best reason, but in court, this is not allowed to have its proper weight. Each witness, too, endeavours to put the case in favour of the side that employs him; it cannot be otherwise, so long as human nature is human, and

this standpoint may be, and generally is adopted by the expert in all honesty. Why should not both sides be compelled to retain the same man or men? In such a case the medical expert would be swayed no more in one direction than the other, and he would be compelled to give an unbiased opinion. Some of the difficulties involved by such a measure are very apparent, but the fact that it has been done is strongly in its favour. Each side would have the privilege of refusing to share the services of any particular expert, but in every community there are men upon whom both sides could agree, provided that both sides wanted an honest opinion. If expert after expert were challenged by one side or the other, the power might well be vested in the court to compel both sides to agree upon some one. If this were not practicable, some cases would no doubt be compelled to do without medical expert evidence; and cases are known to us where, we think, the ends of justice would be all the better served.

In this connexion, we are glad to see that the Medical Socitey of the State of New York, appointed a committee to confer with another committee, similarly appointed by the Bar Association of New York, upon the subject of regulating medical expert testimony. Their recommendation provided that in civil cases, a list of qualified men should be drawn up, from whose number the court might appoint one or more to examine a case and report their opinion in writing. They recommended, also, the fee which should be paid for such services. Their opinion was, further, in favour of permitting the litigants to call whom they wished, as further evidence, at their own expense, but we venture to think that the jury would be likely to find useful the evidence of officially appointed experts. It is to be hoped that such measures as this will lead to a better state of affairs, one more in keeping with the dignity of the medical profession.

THE JOURNAL OF THE ASSOCIATION.

An association without some means of recording its transactions and expressing its convictions is largely ineffectual. The Canadian Medical Association is in such situation, but that need not last forever. At the Montreal meeting last year a committee was appointed to consider the whole matter and make report upon the feasibility of establishing a journal. The members of this committee are resident in various parts of Canada, from St. John to Vancouver, yet the chairman was able to dscuss the matter personally with all the members but one. Several of the members who were quite willing to give an assent to the general proposal were not insensible to the difficulties which lie

in the way. At the meeting held in Ottawa in June, the members of the committee who were present, only two in number, reported that the establishment of a journal must depend upon the number of subscribers. If a fee of five dollars were exacted from all members irrespective of attendance upon the meetings, and three dollars set apart from each subscription for a journal, it was felt that the enterprise might be undertaken with good prospect of success; but this was upon the further assumption that the association would contain 1,200 to 1,500 members. The matter now rests with the finance committee, which is composed of Drs. Armstrong and Bell, of Montreal; Dr Powell, of Ottawa, and Dr. Fotheringham, of Toronto.

PROFESSOR E. A. SCHAFER.

There is a certain appropriateness, not to say old time piety, in the intercourse between the McGill Medical School and the University that was the *alma mater* of its founders, and the example that they kept before them. It is pleasant to see how of late years that intercourse has become more intimate. Dr. Gibson, the well-known Edinburgh authority upon the heart, is to give the opening address in the autumn; both the late Dean and the present Dean of the School have been recipients of honours from Edinburgh, and now McGill has returned the compliment and has conferred her LL.D. upon Dr. E. A. Schäfer, the distinguished, and, indeed, famous Professor of Physiology of the Northern metropolis, making him thus a companion of the equally distinguished Professor of Anatomy, now head of the University, Sir William Turner. It would have been difficult to choose a more worthy recipient. Not only is "Schäfer" a medical institution, as was remarked by one of those present at the dinner given in his honour, familiar to our students as household words through his "Histology," through the "Quain," of which he is chief editor, through the two volumes of his "Physiology," the foremost work upon that subject in our language, but at the same time he has, in the nine years in which he has occupied the Edinburgh chair, given to his department and to the University a lustre as an active centre for medical research (as distinct from medical and surgical practice), such as it has never before possessed. And he himself leads his pupils in active work. The memorable address delivered by Dr. Rolleston last September before the Montreal meeting of the Canadian Medical Association may well be said to have been based upon the observations of Schäfer and Oliver upon the properties of adrenal extract, observations which led to the isolation by Takamine, Abel, Aldrich, Fraenkel and others of adrenalin, or, as Schäfer rightly

and ethically prefers to term it, *Adrenin*.* The members of the Medico-Chirurgical Society were fortunate in hearing from Professor Schäfer the further outcome of this work of studies made by himself and his pupils upon the functions of the pituitary body, and of the discovery that this, small and insignificant as it seems, also affords an internal secretion or secretions, acting like "adrenin" upon the blood pressure and in addition having a profound diuretic effect, and, what is more, absolutely essential for the continued existence of the individual. What developments will proceed from these striking observations time alone can determine, but by analogy we are upon the threshold of advances of no little practical importance. Anatomist, histologist and physiologist, teacher, writer and investigator, it is given to few of the present generation to cut so wide a swath. McGill in honouring Professor Schäfer has yet more honoured herself.

* See his valuable Oliver-Sharpey lectures on the suprarenals, in the British Medical Journal, May 30th and June 6th of this year.

At a meeting of the governors of the Royal Victoria Hospital, the following appointments were made to the house staff for the year ending June 30th, 1909:—Admitting Officer, Dr. Scrimger; House Physicians, Drs. Logie, Landry, Murphy, Soley; House surgeons, Drs. Patterson, Quinn, Sinclair, Benvie, Chipman; House Gynæcologist, Dr. Burgess; House Ophthalmologist, Dr. Morin; House Otologist, Dr. Wright; House Anæsthetist, Dr. McGibbon; Externe in Medicine, Dr. Kaufmann; Externe in Pathology, Dr. Holman; Locum Tenens, Dr. Barry.

An Alumni Society has been organized in connexion with the Medical Faculty of McGill University. The following officers were unanimously elected:—Hon. President, Dr. F. J. Shepherd; President, Dr. R. Ruttan; Vice-presidents, Four to be appointed to represent districts; Secretary-treasurer, Dr. J. A. Scane; Committee—Dr. F. M. Elder, Dr. Grant Stewart, Dr. A. H. Gordon, Dr. Herbert Ross, Dr. Geo. Shanks, Dr. O. S. Waugh, Dr. R. E. Powell.

CANADIAN MEDICAL ASSOCIATION.

The 41st meeting of the Canadian Medical Association was held in Ottawa, from June 9th to 11th, inclusive. About 225 members of the Association were registered.

If we are correct in estimating the practising physicians in Canada at 6,000, the sick of the land were not seriously neglected on account of the meeting.

Article VII of the Constitution of the Canadian Medical Association,

adopted at last year's meeting, "provides that the Provincial Association in whose Province the Canadian meeting is held shall for that year withdraw its meeting, holding only an executive session at the same time and place as the meeting of the Canadian Medical Association."

For some reason unknown to us this compact was disregarded, and the largely attended Hamilton meeting just prior to the smaller Ottawa one was the result. This is not the best way to build up a National Association.

As first intimated this year's meeting was the first held after the adoption of the new, or "National" constitution, and fitly was held in the Federal capital and presided over by a Federal medical officer, Dr. Montizambert.

Dr. Montizambert was a marked success as a presiding officer, and his Presidential Address, dealing with Sanitation from the personal, civil, national and international standpoints, was a feature of the meeting. Being the Presidential Address meant that it should have a mixed medical and lay audience, and the President rose to the occasion and accomplished the feat of making an address evidently interesting and actually valuable.

For the professional part of the meeting, sections were provided—medicine, surgery, neurology, obstetrics, gynæcology, public health, laboratory workers, military medicine, eye, ear, nose and throat—each had its separate meetings.

In a larger association this is probably necessary, but in practice at the Ottawa meeting it did not work out to advantage. Some section meetings had a baker's dozen, and some a corporal's guard, while others were well attended.

The section in general medicine held its first meeting at 9.30 a.m. on Friday. The first paper, by Drs. Omar Wilson and J. H. Alfard, of Ottawa, was an account of some experimental work on the effect of the X-ray upon the generative glands of animals, and showed the appearance of atrophy and degenerations in sections from these organs in animals exposed during life to the X-ray.

Drs. V. E. Henderson and W. H. Cronyn, of Toronto, next presented a very complete pharmacological study of ergot.

The paper of Dr. C. S. MacVicar, of Toronto, on "Our Experience in Broncho-Pneumonia," was, in the writer's absence, read by the secretary.

Dr. G. S. Young, of Prescott, in "What shall we say to our Neurasthenic Patients," emphasized the value of common sense in dealing with such people.

In the afternoon Dr. Finley, of Montreal, in conjunction with Dr. P. G. White, reported results from the use of Flexner's serum in epidemic cerebro-spinal meningitis based upon cases from the Montreal General Hospital.

Dr. Graham Chambers, of Toronto, in a paper upon "The Diagnostic Value of Perversion of the Gastric Secretion," discussed a number of the common fallacies in gastric examinations.

Dr. James Baird, of Hemmingford, reported a number of cases of pernicuous anæmia. These papers all provoked considerable discussion. The section was unfortunate in having three other contributors fail to appear.

The section of mental and nervous diseases which met on Wednesday morning had a very full programme eleven papers in all, but of these the following only were presented; the authors of the others being absent, their contributions were taken as read:—"Insanity and the General Practitioner," Dr. T. H. Mohrer, Brockville; "Hydro-therapeutics, as applied to Mental and Nervous Diseases," Dr. A. T. Hobbs, Guelph; "Alcoholic Injections in Tic Doloreux," Dr. D. A. Shirres; "Partial Visual and Auditory Aphasia the result of Cerebral Abscess following Peritonsillar Abscess," Dr. C. K. Russel, Montreal; "A Study of Thomsen's Disease," by a sufferer from it.

The probability of the occurrence of myotonïa congenita is slight in any case, of its occurrence in a physician extremely so, consequently the myotonic autobiography was a feature of considerable interest.

Thursday's medical proceedings were all centred above the diaphragm. Dr. W. F. Hamilton, of Montreal, read a paper upon "Some further Observation on Pneumothorax," in which the occurrence of the disease without discoverable tuberculosis was emphasized.

In a paper upon "Out-patient Clinics for the Tuberculous Poor," Dr. Harold Parsons, of Toronto, outlined the method in use at the Toronto General Hospital among this class of the population .

Dr. Parsons' paper and the discussion which followed constituted a very valuable portion of the medical section's programme.

Dr. J. K. M. Gordon, of Gravenhurst, reported some complications of tuberculosis, and Dr. J. H. Elliott, of Toronto, discussed hæmoptyses in pulmonary tuberculosis. Dr. Geo. D. Porter, of Toronto, read a paper on the choice of climate. Dr. Porter has a "genius for exposition," which immediately interested his audience in an often uninteresting subject.

The section on public health and the section of laboratory workers were rather poorly attended, and here, too, there was an unfortunate failure of contributors to appear, even at the eleventh hour.

The following papers were read:—"The National Importance of Pure Milk," Dr. C. J. O. Hastings, Toronto; "Anæsthesia in Laboratory Work," Dr. V. E. Henderson, Toronto; "Chorion Epithelioma of the Testis," Dr. C. B. Keenan, Montreal; "A Criticism of the Ammonium Nitromolybdate method of detecting organic Phosphorus in the Tissues," Dr. G. G. Nasmyth and E. Fidler, Toronto; "Septicæmia with Acute Fibrinopurulent Pericarditis and Hypopyon Iritis caused by the Meningococcus," Dr. C. W. Duval, Montreal; "The cultivation of the Meningococcus from Eye conditions complicating epidemic Cerebro-spinal Meningitis," Dr. Hanford McKee, Montreal.

The section of eye, ear, nose and throat held its meeting on Thursday morning and had an interesting session, while the quality of the work was well up to the average.

Dr. F. J. Tooke, of Montreal, showed a set of test lenses for estimating bi-focal vision, not hitherto made use of, and he also read a communication upon "The Advantage of the Capsule Forceps in Eye Surgery."

Dr. C. M. Stewart, of Ottawa, discussed Killian's submucous resection of the nasal septum.

Dr. N. C. Jones, of Toronto, outlined the treatment of acute suppurative otitis media emphasizing early puncture of the drum head.

In a paper on "Ethmoidal Empyema," Dr. H. D. Hamilton, of Montreal, referred to the presence of foreign bodies in the nose as a causal factor.

Dr. Hanford McKee, of Montreal, discussed the etiology and treatment of corneal ulcer with reference to the bacteriological findings.

Dr. G. H. Mathewson, of Montreal, reported recovery of an eye after the onset of sympathetic ophthalmia.

Dr. J. N. Roy, of Montreal, presented a rare condition in calcified fibroma of the orbit, and Prof. Reeve, of Toronto, in speaking of "Injuries to the Eye," counselled conservative operation before resorting to enucleation.

The section on gynæcology and obstetrics met on Wednesday morning with a fair attendance. "The Gonococcus as a factor in Infection following abortion or full term labour" was the subject of a paper, bacriological in character, by Dr. Fraser B. Gurd, of Montreal. Dr. Reddy, of Montreal, took up the question of the toxæmia of pregnancy from the clinical side, and discussed its diagnosis, its treatment and its prevention. Prof. J. C. Cameron, of Montreal, read an interesting paper upon pregnancy and heart disease, with reports of a considerable number of cases.

Cæsarean Section and Pubiotomy, respectively, were discussed by Drs. Webster, of Ottawa, and Farrell, of Halifax. Dr. David Patrick, of Montreal, reported a case of uterine inversion. Dr. Lapthorn Smith

read a paper entitled "Thoroughness in Abdominal Surgery." Dr. Lockhart's paper on "Chorio-epithelioma" was presented, but not read for lack of time.

The association was favoured with the presence of three distinguished visitors, Dr. J. S. Risien Russell, of London, who delivered the Address in Medicine; Dr. John C. Munro, of Boston, who gave the Address in Surgery, and Dr. John B. Deaver, of Philadelphia, who read a paper upon gall-stone disease.

The title of Dr. Risien Russell's address was, "The Value of the Reflexes in Diagnosis." Clear thinking, lucid expression, and a use of English, pure and undefiled, give to Dr. Russell's speaking a charm not common, and his subject, which in many hands might have become most complex, was by him made almost elementary in its simplicity.

Following Dr. Russell's address came that of Dr. Munro, on "The Surgical Rights of the Public." Dr. Munro has no hesitation in passing upon the general practitioner who poses as a surgeon. The physician who does not call in the surgeon, the etherizer who watches the surgeon, and the interne who substitutes for the surgeon all come under the *tribulum*.

Dr. Deaver's paper on gall-stone disease was a clear review of the subject by one well qualified by experience to review such a subject.

From the social side the meeting was a success and the local committee is to be congratulated upon the result of its efforts.

For the first day an electric car ride to the Golf Club House on Aylmer Road and a reception took part of the afternoon; in the evening following the President's Address, Mayor Scott and Sir Wilfrid Laurier welcomed the members to Ottawa, after which a civic reception was held in the Carnegie Library.

On Wednesday afternoon the Association and friends were the guests of the Canadian Pacific Railway at luncheon at Caledonia Springs, a special train leaving Ottawa at 12.45 p.m. and returning about six.

On Thursday morning the ladies of the Association were taken for an automobile ride with luncheon at the Golf Club, and in the evening the Ottawa members of the profession gave a smoking concert at the Russell House.

Reviews and Notices of Books.

ROTUNDA PRACTICAL MIDWIFERY. By E. HASTING TWEEDY, F.R.C.P.I., and G. T. WRENCH, M.D., Oxford Medical Publications.

This work, as indicated by its title, is an epitome of Midwifery as taught and practised at the Rotunda Hospital, Dublin, and is written by

the present master with the assistance of Dr. Wrench, Late Assistant Master.

In it are incorporated the teaching of the former masters, together with the personal and recent experience of the author in Rotunda Methods. The deductions as to the efficacy of these are drawn from statistics covering the last three years and comprising 5,630 internal and a larger amount of external cases.

The Rotunda Hospital has always been recognized throughout the medical world as a great school of Practical Midwifery; founded in 1745 it may well be the largest, the longest established and the most famous Maternity Hospital in the British Empire. There is hardly a country in the world that has not sent medical men to study at this school.

The scope of the book is designed to be *essentially practical.* It furnishes the student or practitioner with a guide to the diagnosis and treatment both of normal and of abnormal cases, the treatment being given in detail so that the methods of this school can be adopted and carried out by any medical man. As instances, we may refer to the treatment of *accidental haemorrhage* and of *eclampsia.* Again, the various operations of urgency which the medical man may be called upon to perform at a moment's notice, under the most adverse conditions, are fully described.

For the same reason no account of the anatomy of the pelvis, nor any embryology will be found in this book. A very short account of the mechanism of labour is included, restricted only to what is essential to know in order to understand the proper treatment.

The management of normal labour has been dealt with in the greatest detail, no part, however apparently trivial, being omitted, which may aid the practitioner in his endeavours to prevent a case becoming abnormal, or in recognizing the abnormality at the earliest possible time when such exists.

Having in view its great importance the subject of *puerperal sepsis* in all its aspects receives special attention, from the point of view of its prevention and of the early recognition both of minor morbid conditions as well as the graver forms of infection. The authors are of opinion that in the vast majority of cases, puerperal infection has its beginning in some minor form, which, once recognized, can be promptly dealt with.

A full account is given of the early *care of the healthy infant* and of artificial feeding. The clinical differences between the healthy and the unhealthy infant are then dealt with—stress being laid on the prevention of ill health. The work concludes by a short account of the various early affections of infancy.

THE TREATMENT OF DISEASE; A Manual of Practical Medicine. By REYNOLD WEBB WILCOX, M.A., M.D., LL.D. Second Edition, revised, 932 pages. P. Blackiston's Son, & Co., Philadelphia.

At the outset we take decided exception to the title of this book, on account of the fact that the author does not direct the attention of the student in any special way to treatment. The whole trend of the book is expressed rather in the second title of the work,—A Manual of Practical Medicine. As such we have no fault to find with it, yet at the same time but little occasion to commend it, for of the making of such books there seems at present to be no end. However, written as the author claims, with the practical needs of the physcian always in view, and after twenty-five years teaching more than ten thousand medical graduates, the book contains the essentials in diagnosis and treatment, but it should not pass as a book on the treatment of disease. The subject matter of the book is comprised under twelve sections, beginning with the Infectious Diseases and closing with Parasitic Diseases. Needless to say, there are many subsections, as, for example, those found under Diseases of the Digestive System and Peritoneum, and those found under Diseases of the Respiratory System.

One notices in going through the book, short paragraphs upon unusual topics, as *e.g.*, Nasha Fever, Kala-Azar, Kubisagari, Purinæmia, Borisin, Atryplicism, Amok, or Amuck.

The book is well printed and possesses a good index.

TREATMENT OF INTERNAL DISEASES FOR PHYSICIANS AND STUDENTS. By DR. NORBERT ORTNER, of the University of Vienna. Edited by NATH. BOWDITCH POTTER, M.D. Translated by FRED. M. BARTLETT, M.D., from the Fourth German Edition, 658 pages. J. B. Lippincott Company, Philadelphia and London.

Ortner's book on Treatment comes somewhat as a surprise to many of us who know the writer at work, yet on reading its pages we suspect that we may have misjudged him, when we regarded him only from the standpoint of the fine diagnostician.

In the preface of the first edition the author states that he has "endeavoured especially: (1) to explain briefly but clearly the rationale and the technic of every variety of therapeutic measure useful at the bedside; (2) to give explicit directions in regard to the choice of mineral waters and baths suited to each individual condition, and (3) to furnish not merely lists of prescriptions, but, whenever possible, a brief account of the action of each drug, with the hope of making medication less an affair of the memory and more one of reason."

The first edition appeared in 1907, and the fourth, that from which this is translated, came out in September, 1906. In this, some new

matter was added, and from this edition some earlier suggestions not standing the test of time and Dr. Ortner's experience have been dropped.

As one turns through this edition the impression grows upon one that treatment of disease is becoming less medicinal and more mechanical, climatic, dietetic, hydro-therapeutic, and had Dr. Ortner discussed the treatment of diseases of the nervous system he would have of necessity emphasized the psycho-therapeutic methods now so frequently employed.

In the translation, which we must regard as faithfully done, the prescriptions have been altered to conform to the American Pharmacopœia—and references to climatology, hygiene and dietetics have been adapted to the needs of the American student and practitioner.

The work is taken up under sixteen sections, fourteen of which Dr. Ortner supplies. The appendix consists of two sections, one contributed by Prof. Frühwald on the Therapy of Acute Infectious Diseases, *e.g.*, scarlet fever, measles, etc., and the other on the Therapy of Neurasthenia is by the editor, Dr. Potter. This last section is included typographically, under infectious diseases.

The book is suggestive, helpful, possibly somewhat wordy in certain themes, but, on the whole, a very valuable addition to any practitioner's study.

W. F. H.

INDEX OF TREATMENT BY VARIOUS WRITERS. Edited by ROBERT HUTCHISON and STANSFIELD COLLIER; revised to conform with American usage by WARREN COLEMAN. Wm. Wood & Co., 1908.

This book is a very compact and most useful index to medical therapy and non-operative surgical treatment, "as well as such minor or emergency operations as any practitioner may be called on to perform." Among the seventy-odd contributors, one finds such names as Allbutt, Bradford, Bramwell, Gibson, Russell, Saundby and West. All have written their sections with great care and conciseness, and in a spirit of toleration and modernism that does them great credit. While most of the subjects receive but a dozen lines, pages are devoted to such important conditions as nephritis (West), retention of urine (Walker), rickets (Thomson), typhoid fever (Goodall). Warren Coleman of New York has prepared the American edition and has adapted the English prescriptions to the U. S. P. He also gives the agencies in America of the various English and German manufacturers of anti-toxic sera. Similarly in the article on epilepsy, American institutions for the care of epileptics have been substituted.

C. P. H.

THE SEXUAL QUESTION. By AUGUST FOREL, M.D., formerly Professor of Psychiatry, Zurich. English adaptation by C. F. MARSHALL, M.D., London. New York: The Rebman Company, 1123 Broadway.

This book comes perilously near being obscene. Publications which are quite as useful and much less offensive have been forbidden the use of the mails. Possibly there are persons who are compelled to read the book,—printers and proof-readers, who are paid by the week. The present reviewer is under no such obligation, and the opinion expressed is based upon the most cursory examination. It must be admitted that there are some fresh obscenities in the book which will interest a perverted mind. Much of the teaching is false and the references to religion are revolting. The comment upon "old bachelors" is particularly cruel. The book is a fine example of that form of exercise which is known as "writing for the fire." O, Science, what indecencies are committed in thy name. The author was formerly Director of the Insane Asylum in Zurich. Possibly there are some of his patients who might be diverted by reading the book.

THE PRACTICAL MEDICINE SERIES. General Editor, GUSTAVUS P. HEAD, M.D. Vol. I., General Medicine, edited by FRANK BILLINGS, M.D., and J. H. SALISBURY, M.D.; Vol. II., General Surgery, edited by JOHN B. MURPHY, M.D. Series, 1908. Chicago: The Year Book Publishers, 40 Dearborn Street.

The present volumes are two of a series of ten issued at about monthly intervals, and covering the entire field of medicine and surgery. Each volume is complete for the year prior to its publication on the subject of which it treats. This series is published primarily for the general practitioner, at the same time the arrangement in several volumes enables those interested in special subjects to buy only the parts they desire. On many occasions we have called attention to the excellence of these volumes and desire to do so again.

THE PRINCIPLES AND PRACTICE OF HYDROTHERAPY. By SIMON BARUCH, M.D., New York. Third Edition, revised and enlarged, with numerous illustrations. New York: William Wood & Company, 1908. Price, $4.00 net.

The author of this book is the leading authority on the subject of which it deals. Owing largely to his teaching and practice, the employment of hydrotherapy has become a well recognized measure in the treatment of disease. In this volume the whole practice of hydrotherapy is set forth with the indications for its use and the various methods of its employment. The teaching of the book is sensible and free from vaga-

ries. The description of methods is clear and easily comprehended even by a physician without practical experience in the various applications of water.

THE COMMONER DISEASES OF THE EYE. By CASEY A. WOOD, M.D., and THOMAS A. WOODRUFF. Chicago: G. P. Engelhard & Company, 1907.

We have already reviewed this work in January last. It now appears from the hands of another publisher, Messrs. Engelhard & Company. There is really nothing new to add in addition to what we have already stated in regard to it.

J. W. S.

Medical News.

CONVOCATION IN MEDICINE.

The annual convocation for conferring degrees in medicine was held on June 12th. The award of prizes was made as follows:

FOURTH YEAR.

Holmes Gold Medal, for highest aggregate in all subjects forming the Medical Curriculum:—W. J. P. MacMillan, Clermont, P.E.I.

Final Prize, for highest aggregate in the Fourth Year subjects:—G. B. Murphy, B.A., Brockville, Ont.

Wood Gold Medal, for best examination in all the Clinical Branches:—F. C. Clarke, Coverley, Christ Church, Barbados, W.I.

Woodruff Gold Medal, for best examination in Ophthalmology and Oto-Laryngology:—J. S. Simpson, Maynard, Ont.

McGill Medical Society Senior Prize:—First Prize—J. Kaufmann, Montreal, Que.; Second Prize—A. H. MacCordick, North Gower, Ont.

THIRD YEAR.

Third Year Prizeman:—E. H. Funk, Rossland, B.C.

Sutherland Medallist:—C. M. Kelly, B.A., Springfield, N.B.

Hils Prize, for best examination in Pharmacology and Therapeutics:—A. Bramley-Moore, London, England; E. G. Worley, Haley's Station, Ont., equal.

SECOND YEAR.

Second Year Prizeman:—H. A. Campbell, Sherbrooke, Que.

Senior Anatomy Prize:—T. A. Robinson, St. Mary's Ont.; G. T. Wilson, Vancouver, B.C., equal.

FIRST YEAR.

First Year Prizeman:—D. S. Lewis, M.Sc., Montreal, Que.

Junior Anatomy Prize:—A. P. Davies, Hull, Que.

The Degree of M.D., C.M., was conferred upon the following undergraduates:—Arbuckle, J. W., Summerside, P.E.I.; Arton, O. A., Bailey's Bay, Bermuda, W.I.; Ballem, J. C., B.A., Mount Albion, P.E.I.; Barry, J. L., Morrisburg, Ont.; Bechtel, A. D., Victoria, B.C.; Bennett, S. J., Waterloo, Que.; Blanchet, S. F., Ottawa, Ont.; Campbell, D. G., B.A., Montreal, Que.; Campbell, J. de L., Arnprior, Ont.; Chipman, R. L., M.A., Kentville, N.S.; Clarke, F. C., Coverley, Christ Church, Barbados, W.I.; Davis, S., Montreal, Que.; Dewar, R. D., Glen Sandfield, Ont.; Dexter, R. B., B.A., Wolfville, N.S.; Donahoe, R. A., Cardigan Bridge, P.E.I.; Fenton, G. S., Ottawa, Ont.; Freedman, A., Lachine, Que.; Fyfe, A. M., Kingston, Jamaica, W.I.; Garcelon, H. W., A.B., Lewiston, Maine, U.S.A.; Gardiner, A. E., McAdam Junction, N.B.; Goodwin, B. E., Amherst, N.S.; Holbrook, C. E., Ogdensburg, N.Y., U.S.A.; Hunter, W. B., Vanceboro, Me., U.S.A.; Jenkins, W. M., Downeyville, N.B.; Kaufman, J., Montreal, Que.; Kelley,, J. W Detroit, Mich., U.S.A.; Kennedy, A. H. N., McLeod, Alta.; Kirby, W. P. P., B.A., Gagetown, N.B.; Langsford, Wm., M.D., Oklahoma City, Okla.; Lees, F. W., Perth, Ont.; London, J. F., Wickham, N.B.; Lovering, J. E., Coldwater, Ont.; Lynch, J. G. B., Almonte, Ont.; MacArthur, C. O., Summerside, P.E.I.; MacCordick, A. H., North Gower, Ont.; Macdonell, D. F., B.A., Port Hood, N.S.; MacMillan, W. J. P., Clermont, P.E.I.; McDonald, J. N., Shelbourne, N.S.; McDonald, R. H., North Bedeque, P.E.I.; McGibbon, J. A., Forest, Ont.; McGrath, J. P., B.L., Tignish, P.E.I.; McKay, W. H., Ottawa, Ont.; Martin, A. A., Fingal, Ont.; Morin, J. H. G., B.A., St. Hyacinthe, Que.; Moses, H. C., Caledonia, Ont.; Murphy, G. B., B.A., Brockville, Ont.; Nagle, F. W., Montreal, Que.; Nordbye, F. A., Granite Falls, Minn., U.S.A.; Ortenberg, S., Quebec, Que.; Perrigard, E. N., Montreal, Que.; Powell, R. E., B.A., St. John, N.B.; Purdy, C. E., Bear River, N.S.; Read, G. C., B.A., Summerside, P.E.I.; Rocheleau, W. C., B.A., Woonsocket, R.I.; Ross, C. E., Westmount, Que.; Sawyer, C. D., Lewiston, Me., U.S.A.; Shanks, Geo., B.A., Howick, Que.; Shewan, D. R., Westmount, Que.; Simpson, J. S., Maynard, Ont.; Soley, L. A., Parrsboro, Ont.; Tanton, E. T., St. Eleanor's, P.E.I.; Thomas, F. H., Somerset, N.S.; Tracy, W. L., M.A., Hartland, N.B.; Wallace, C. T., Eureka, Cal.; Waugh, O. S., Westmount, Que.; Wilson, K. M., Madoc, Ont.; Wright, R. P., Montreal, Que.; Yeo, I. J., Charlottetown, P.E.I.

The Valedictory was given by Dr. Donald F. Macdonnell, B.A. (St. Francis Xavier).

The Address to the Granduates was read by Prof. T. A. Starkey,

M.B. and D.P.H. (Lond.), M.R.C.S. (Eng.), Fellow Royal Sanitary Institute.

The degree of LL.D. was conferred upon Dr. Edward Albert Schäfer, Professor of Physiology in the University of Edinburgh. Dr. Schäfer then delivered an address.

Dr. Roddick gave the sessional address, which was as follows:—

"The total number of students registered in the Faculty of Medicine for the session 1907-08 was 348, 12 of whom were dental students and 12 post-graduate students. This number was made up as follows: First Year, 64, (4 dental students;) Second Year, 104 (3 dental students); Third Year, 78, (1 dental student); Fourth Year, 90, (4 dental students). Graduates in attendance, 12; total, 348.

"Included in the first year are nine students who had registered in the double course for the degree of B.A., M.D., two years previous to the change in the Medical Curriculum to five years; it was therefore found necessary to provide for them a first year, under the old four-year regulation.

"As to the different provinces and countries from which our students have come: there were from Ontario, 74; Quebec, 75; New Brunswick, 28; Prince Edward Island, 30; United States, 45; West Indies, 20; Newfoundland, 4; Nova Scotia (including Cape Breton), 34; British Columbia, 22; Manitoba, 4; Northwest Territories, 6; England, 3; Scotland, 1; Ireland, 1; Yukon Territory, 1.

"Compared with other years this shows a falling off in numbers, due, in the main, to two causes, viz., the destruction of our building by fire in April of last year, and the establishment this session of the fifth year. The impression got abroad, especially in the West, that, owing to the fire, our facilities for teaching would be limited. Fortunately, that part of the building containing the chief laboratories was only partly destroyed, and was restored in time for the opening of the session in September last; so that while the work in some of the departments was hampered, it was in no case very seriously affected.

"I am pleased to be in a position to report that the plans have been accepted and ground has been broken for the new Faculty building, on the land kindly donated by Lord Strathcona; extending between University Street on the east, Carleton Road on the west, and Pine Avenue on the north. The architects promise that the new laboratory wing, containing the anatomical, pathological, and dental departments, and the administration building, with library, lecture theatres, etc., will be quite ready for occupation in September, 1909. Nothing will be left undone to make it one of the most complete medical buildings on this continent,—or, indeed, anywhere.

"Again, with the establishment this session of an additional year, we were quite prepared for a considerable decrease in our numbers. However, we have been agreeably surprised. To have had 64 first-year students is, under the circumstances, most gratifying. But the shock is now over, and as the other universities in Canada fall into line with the adoption of a five-year course, we may again reasonably expect our full share of students. There is every indication that the various licensing bodies in Canada will, in the very near future, exact a fifth year; so that we shall not have long to wait for the other teaching bodies to follow our example. The last year of the course will be devoted solely to clinical work; therefore, with the unrivaled hospital facilities in this city, we may reasonably expect that, instead of being a deterrent, this fifth year will prove an attraction."

"Two subjects have been added to the curriculum during the year, viz., those of the History of Medicine and Parasitology, under Professor Macphail and Associate Professor Todd respectively. The well-known literary attainments of the former fully justified his appointment, and Dr. Todd has been favourably known to the profession for some time, through his investigations and discoveries in connexion with the work of the Liverpool School of Tropical Medicine. They are both graduates of this university. Dr. Todd will be also attached to the staff of the Macdonald College.

"I have pleasure in reporting that three gentlemen received the Degree of Master of Dental Surgery, at the April convocation. These were the first graduates in dentistry. The dental department, established four years ago, has not attracted the number of students anticipated, the cause evidently being in the style of the degree offered. It was decided by a resolution of the faculty, passed a few days ago, to ask corporation to sanction the conferring of the degree of doctor, instead of master of dental surgery. It is thought that such a change will be the means of attracting students from a distance, and especially from the United States, when the degree of D.D.S. is universally conferred.

"It is interesting to know that the university is getting into closer touch all round with the militia service of Canada. In addition to the regular examinations of the faculty during the session, special examinations were held for the officers of the Permanent Army Medical Service Corps, for advancement from captain to major. Two candidates were examined in November last, both of whom passed. During the latter part of the session two other candidates presented themselves, taking special courses in the laboratory of hygiene, and passing the examin-

ations in that subject. I understand from the military authorities that in future all officers of the Army Corps seeking promotion will be sent to us for instruction and examination, chiefly because of our exceptional facilities for the teaching of hygiene under Professor Starkey. I might mention that several special courses were conducted in the department of hygiene, one candidate qualifying for the degree of Ph.D., another, a graduate of the Engineering Faculty.

"The recent death of Emeritus Professor Wright removed the last of the 'old guard' who were controlling the destinies of the Medical Faculty when I entered it as a student in 1864. To quote from the resolution of condolence passed by the faculty a few days ago: 'Dr. Wright was a man of wide culture and great knowledge, and could wield a facile pen in his earlier years, contributing largely to the literature of therapeutics. He held successively the posts of demonstrator of anatomy, professor of medical jurisprudence, and also the chair of materia medica and therapeutics for twenty-nine years. The latter chair was filled by him with much distinction. In his lectures he treated his subject with a thoroughness that greatly impressed his audience.' It might be further said of him that he possessed a remarkable memory and a most extensive vocabulary.

"Thanks to the untiring energy and inimitable tact of Dr. Macalister, president of the British Medical Council, medical reciprocity between the Province of Quebec and Great Britain is now an accomplished fact. This means much, especially to the profession in this province and to the students of medicine who are being educated here. It practically opens wide the empire to our young men, giving opportunities for actual practice, not only in the British Isles, but in the Indian medical services, the army and navy, the crown colonies, and the mercantile marine. Thus may the congestion here be relieved, and the fame of our universities extended. The president and members of the College of Physicians and Surgeons of this province are to be congratulated on the foremost place taken by them in the furtherance of this most important measure.

"My term of office expires to-day, but my interest in the success and welfare of the university and faculty will not diminish in the smallest degree. Indeed, as a member of the Board of Governors of the university, to which I have just had the honour of being appointed, I shall no doubt have opportunities of serving my former colleagues, which did not offer before. In my new position I shall strongly advocate, among other things, measures for the improvement of the social condition of the student. We have all along felt that he should be housed

more comfortably and safely, and that the cost of living should be lessened for him. It is notorious that Montreal is becoming one of the most expensive cities on this continent. Let us aim to make it one of the least expensive for our students. My predecessor, the late Dr. Craik, held strong views on this subject; but, unfortunately, he was laid low with a deadly malady soon after he had presented from this platform his scheme of reform. It shall be my endeavour to follow his lead and to urge on every possible occasion the adoption of measures for the increased comfort of those who entrust themselves so unreservedly to our care.

"I heartily congratulate the university on the appointment of Professor Shepherd as my successor, and would express the earnest wish that my friend, the new dean, may experience the same kindness and courtesy from his colleagues and the same measure of loyalty from the student body that I have so long enjoyed.

"Gentlemen graduates, keep your Alma Mater ever uppermost in your thoughts. There has, perhaps, never been a time in the history of this university when the sympathy and support of all of us were more needed than now. As a class you have already shown unusual evidences of affection for her. You will be long remembered for the part you have taken in the recent organization of the Alumni Association, which is intended to keep alive that university spirit so much to be desired. May all success follow your endeavours in this direction. Let your love for Old McGill never grow cold.

"Fare you well! Godspeed you on your way."

The section of the Canadian Medical Association on Military Medicine, which met on June 11th, at 9.30, carried out the following programme: (1) President's Address, Col. Ryerson; (2) Reports of Committe; (3) Election of Officers; (4) Papers—Lt.-Col. Jones, D.G.M.S., "On the advisability of forming a Canadian Ambulance and Red Cross Association"; Lt.-Col. Cameron, A.M.C., No. V. Field Ambulance, Lieut.-Col. Sponagle, A.M.C., "The Territorial Army Medical Corps, and the Canadian Medical Services—a comparison"; Captain G. M. Campbell, 1st C.A., "Some of the Difficulties met with in Camp Sanitation"; Lt.-Col. Maclaren, A.M.C., P.M.O., M.D. No. 8, "The Disposal of Excreta and Refuse in Camps"; Major L. Drum, P.A.M.C., "The present aspect of Military Sanitary Work"; Captain L. M. Murray, A.M.C., No. 1 Field Ambulance, "Ready and simple Tests in the Field for Water, Milk and the Detection of Diseases in animals"; Major Kilborne, P.A.M.C.

The following officers were elected for the ensuing year:—Hon. President, The Hon. Sir Frederick Borden, K.C.M.G., Minister of Militia; Hon. 1st Vice-President, Col. E. Fiset, D.S.O., G.G.H.S., Deputy Minister of Militia; Hon. 2nd Vice-President, Lt.-Col. G. E. Jones, G.G.H.S, Director Gen. of Medical Services; President, Lt.-Col. G. Sterling Ryerson, M.R.O., Toronto; Secretary and Treasurer, Lieut. T. H. Leggett, A.M.C., Ottawa; Assistant Secretary, Lieut. O'Hagan, P.A.M.C.;

In addition there were elected thirteen Vice-Presidents—one from each Military District.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

EDWIN BEER, M.D. "The Phloridzin Test." *Jour. A. M. A.*, June 13th, 1908.

The article deals with special reference to the influence exerted by a diseased kidney on the excretory work of the second organ, and is limited to a consideration of the value of the phloridzin test as advocated by Casper and Richter, and modified by Kapsammer. Heretofore, the teaching has been that the subcutaneous injection of ten to 20 minims of a 1 per cent. solution of phloridzin is normally followed within half an hour by the excretion of sufficient glucose to give the well known reaction. The non-excretion of glucose is, therefore, taken as an indication of disturbance in the functional activity of the organ, and means some pathological lesion. If this test gave a negative result in both urines, operation was contraindicated on the grounds of renal insufficiency. It is now well known that disease of one kidney may very materially influence the other organ, as is evidenced by an increase in the functional activity of the well organ. But the reverse may occur, when we may have an inhibition of the functional activity of the sound kidney. In illustration of this latter effect, the writer cites seven cases in which the phloridzin was negative. Operative procedure was undertaken when a positive phloridzin test was obtained in five cases, two being fatal. The series contained two cases of renal tuberculosis (unilateral); one case of double renal tuberculosis with a unilateral nephroptosis in which a positive phloridzin reaction was obtained after nephorpexy; one of ureteral calculus; one of pyonephrosis; one of hydronephrolithiasis with carcinoma when continued hæmorrhage caused death. In all these cases Nature's test was much more reliable than

the phloridzin reaction. Indeed, according to this test, these cases should have shown symptoms of renal insufficiency, but not one did. The cases certainly show the fallacy of depending upon this one test alone, and emphasize the necessity of comparing the composite picture of each urine in order to obtain a reliable knowledge of the condition of each organ.

CLARENCE A. MCWILLIAMS, M.D. "Primary Carcinoma of the Vermiform Appendix." *Amer. Jour. Med. Sciences,* June, 1908.

The report is based upon a study of 105 collected cases, and deals with the subject in a very thorough and up-to-date manner. The chief points of interest may be stated briefly. The condition cannot be diagnosed clinically, but is generally associated with symptoms of appendicitis. Thus, 83 per cent. had symptoms of some variety of appendicitis; 36 per cent. were operated upon during or immediately after the first acute attack; 63 per cent. had symptoms of chronic appendicitis for varying periods of time. The age incidence is almost the same as for ordinary inflammatory appendicitis, *e.g.*, 60 per cent. occur before the age of thirty. It has been found to be more frequent in females than males in the proportion of 57 to 42 per cent., which is a complete reversal of frequency in the inflammatory type. From the figures alone, it would seem that concretions play but little part in the etiology of carcinoma of the appendix. The location of the growth in the great majority of cases reported was at or distal to the middle of the organ, corresponding to the region where strictures, obliterations of the tip, and chronic inflammatory lesions most often occur. Lymphatic involvement would appear to be exceedingly slow. Cœcal cancer in many instances has its origin in the appendix. In quite a number of cases no visible tumour was present in the organ, hence the uncertainty of a macroscopical diagnosis. The frequency of occurrence of primary cancer of the appendix may be conservatively placed at not lower than 0.4 per cent. A pathological classification of the growths gives 22 per cent. columnar-cell, 53 per cent. spheroidal, 9 per cent. transitional, 4 per cent. colloid. This corresponds to the occurrence of the two first varieties in the stomach, while in the intestine alone the columnar type occurs in about 72 per cent. The average age for the spheroidal tumours was twenty-three, for the columnar forty-three, a difference in the age incidence of twenty years. These tumours show a tendency to progressively infiltrate contiguous tissues, but distant metastases are uncommon. The invading mass is of slow growth, the new growths being allied rather to the rodent ulcer type in contradistinction to malignant growth of the alimentary tract generally. Any circumscribed tumour in an

appendix should arouse suspicions of cancer, and the meso-appendix should be widely excised, and glands looked for and removed. The removal of the entire meso-appendix, whenever possible, and the microscopic examination of the appendix is advocated in all cases of appendectomy.

W. L. B.

RETROSPECT OF DISEASES OF CHILDREN.

SCHEUER. "Acquired and Congenital Defect of the Kidney." *Zeit. f. Heilk.*, Bd. 28, H. 4.

Leo Scheuer reports in *Zeitschr. f. Heilk.*, Bd. 28, H. 4, some cases from the autopsy room of a children's hospital. In children dying of other diseases (number of total autopsies not given) he found, during routine examination, absence of one kidney in five cases. Whether such absence is due to non-production of the organ or to rudimentary condition can be determined, he claims, only by microscopical examination. For instance, in two of his cases the microscope revealed definite renal structure. In the remaining three no trace of kidney could be found. True congenital defect is generally accompanied by other defects in neighbouring organs, *e.g.*, double uterus, imperforate anus or urethra. The bearing on surgery is obvious.

PACKARD. "Aspirin as a Cause of Nephritis." *Arch. of Pedriatics* (N. Y.), April, 1908.

Maurice Packard presents a case of hæmorrhagic nephritis apparently associated with the exhibition of aspirin.

A child, four and a half years old, whose entire history was irrelevant, complained of sore throat and chilly sensations. T. 103°, P. 124, R. 28. Urine normal. Throat extremely injected, no membrane. Diagnosis: rheumatic tonsillitis. Aspirin gr. v every four hours was ordered, with ice spray as a local measure.

After two doses (10 grains) the fever subsided and the throat was better, but the child appeared worse. He was sleepy and œdema was present in the face and over the shins. The urine was scanty and of a uniformly bloody colour; microscopical examination revealed numerous blood casts, fragmented red blood cells, renal cells and leukocytes disproportionate to the blood percentage. The aspirin was at once stopped and the patient given several hot baths, when improvement quickly occurred, the urine becoming normal in a week's time. Finally, in order to demonstrate, if possible, the causative relation of the drug it was again given (5 gr.), when albumen, blood casts, epithelium promptly

reappeared. Six months later the urine was normal and the patient well. The author knows of no similar case.

JELSKY. "Acute Hæmorrhagic Nephritis following Mumps." *Archiv. f. Kinderheilkunde,* 1908, XLVIII.

Jelsky observed nephritis in a fatal case of mumps occurring in a child of seven months. The case was the fourth of a series in one family and was typical. On the tenth day recovery seemed complete and the child was allowed to go about on the street. Two days later, however, swelling of the same parotid occurred, with a rise in temperature to 104° F., while the diapers showed a red stain, due to bloody urine, and examination of the latter revealed albumen, blood, and blood casts. With swelling of the submaxillary gland and uræmic symptoms the child died.

Bacteriological examination was indefinite. Of the other three members of the family affected, the first had a light attack, the second was seriously ill, and the third still more so.

HEUBNER. "Autopsy in a Case of Orthostatic Albuminuria." *Berl. Klin. Woch.,* LIV. 1, 1907.

Postural albuminuria has long been recognized as a distinct type apart from other albuminurias of obscure origin. Recent work of Edel, and of Erlanger and Hooker (Johns Hopkins University), has demonstrated a definite relation to variations in blood-pressure, strongly suggesting that the condition depends on circulatory derangements and not on renal disease. Reliable observers, however, have been skeptical and refuse to believe that a normal kidney can secrete large amounts of albumen during a long period of time. Opportunity for histological study has rarely or never occurred. Such an exceptional chance has come to Heubner (*Berl. Klin. Woch.,* 1907, LIV., 1; *Amer. Journ. Med. Sci.,* May, 1907). A girl aged ten years was admitted for chlorosis and œdema. In routine examination he found albuminuria which was accidentally proved to be a very typical case of the orthostatic variety.

This was treated by the horizontal position in bed for several months. At varying intervals she was later kept under observation for over two years, in the last year and a half of which she showed a typical postural albuminuria. At twelve years of age she was re-admitted with definite signs of brain tumour from which she died.

At autopsy the kidneys were examined microscopically, with particular care. Beyond slight cortical congestion and other insignificant (Orth) changes, due in all probability to the prolonged confinement in

bed, the kidneys showed no lesion which could account for the albuminuria—they were, indeed, normal; there being no parenchymatous change.

It is proven then that large amounts of albumin may be secreted through long periods of time (a year or more) by perfectly normal kidneys.

F. M. F.

THE GERMAN SURGICAL CONGRESS.

The Annual Congress of the German Surgical Society was held as usual in the Langenbeckhaus, April 21st to 24th, and—as usual, too—gave ample evidence of Teutonic industry and intellect. The official "Selbstberichte" of the Centralblatt have not yet appeared, but the *Deutsche Medizinische Wochenschrift* publishes a very good abstract of the proceedings, part of which is worth while reproducing.

One of the newest and most daring proposals comes from one of the older surgeons, Trendelenburg. Briefly, it consists in the removal of the post-operative pulmonary embolus by operation. Trendelenburg worked out the procedure and its physiological aspects on animals. Fore-conditions naturally are, certainty of diagnosis and sufficient time for the operation. The diagnosis rests upon the well known symptoms of sudden collapse, pallor, lividity of the lips, loss of the pulse, together with deep and distressed respiration. Looking over his own cases he found that, of nine, only two caused immediate death, while in the others, there elapsed from the moment of collapse to death an interval of from ten to sixty minutes. As to the technique: The pulmonary, lying in the second left intercostal space, is covered by the pericardium, and behind it lies the superior vena cava. Experimentally, he established the fact that the pulmonary artery can be completely compressed at the longest for forty-five seconds; beyond this death occurs. Partial compression is possible for several minutes. The superior vena cava may be compressed with impunity for some time. The operation consists briefly in removal of the ribs, from the 1st to the 3rd; vertical incision of the pleura; incision into the pericardium at the level of the 3rd rib. The vessels here lie a little underneath the sternum; they are pulled forward and a rubber tube passed behind the aorta and pulmonary and afterwards drawn upon. From this moment the operation must be extremely rapid. Incise the pulmonary artery, pull out the embolus with a pair of forceps, and immediately close the incision in the arterial wall with clamps. All this must be done inside three-quarters of a minute. The compression is then removed, and there follows at leisure the suture of the artery and of the soft parts. This procedure worked out on animals was tried in the human once without

success. In a living calf, into whose jugular a piece of lung had been introduced, causing embolic symptoms, the artificial embolus was successfully removed from the pulmonary artery by this method.

Kümmell of Hamburg declared himself a warm supporter of the late practice of gynæcologists in letting their patients up within a day or two after laparotomy; and reports 164 cases with excellent results. This did not pass without opposition. Abel, of Berlin, and Henle, of Dortmund, remarked that they had had unfortunate results in some cases.

Kocher returns to the question of thyroid transplantation in cases of Graves' disease. He recommends its insertion into the medulla of bones, instead of into the spleen, as being a less formidable operation; the results, he says, are equally good.

Payr, of Greifswald, gave the late history of a child suffering from myxœdema and cretinism in whom he had transplanted twenty-eight months previously the thyroid into the spleen; early improvement had not held good, and the ultimate result left a great deal to be desired.

Lexer, of Königsberg, reports a large number of bone transplantations. Formerly he used boiled and macerated bone, and transplanted it underneath the periosteum. This was successful in small defects but not in the larger ones; the bone was usually extruded by suppuration. Lately he has been using the abundant amputation material of his clinic for transplantations; and this absolutely fresh material in which the periosteum is included with the bone has uniformly healed in. The transplanted bone marrow causes fever and inflammatory reaction by its destruction; so that he now clears this out and fills with an iodoform filling, which is later gradually reabsorbed. Of the large variety of his operations for the filling in of various bone defects we may note as especially interesting one case in which the whole upper third of one tibia, together with its articular surface, had to be resected on account of sarcoma. A corresponding piece of bone from an amputated limb, including the joint cartilage, was transplanted fresh, healed in, and relatively good joint function was retained. The same success was obtained in resection of the upper end of the humerus. Finally, in a case of bony ankylosis of the knee he substituted after resection a whole fresh knee joint with cartilages and crucial ligaments entire, measuring 1 to 1½ cm. on either side of the joint surface. The operation was performed seven months previously, but movement was up to the time of reporting slight, and whether good movement could ever be obtained was doubtful.

Bier reports a new method of inducing local anæsthesia in limbs. After expression of the blood by the Esmarch bandage from the toes up, the

limb is tied off about four fingers' breadth above and below the middle joint with a soft bandage; then (in the arm) the median vein is exposed, its blood further expressed, and 100 cc. of a ¼ per cent. solution of novocain injected. Anæsthesia is immediate and suffices for the resection of the joint. After the operation the whole limb below the upper bandage is absolutely analgetic, although not always anæsthetic. In the leg the saphenous vein is chosen, and for resection 150 cc. of novocain solution are injected. Amputations and sequestrotomies are also quite possible.

For fear of intoxication the blood must be allowed into the limb only gradually; first, the lower bandage is removed; then the upper is gradually loosened until bleeding begins, then tightened while the wound is sutured. The anæsthesia disappears within a few moments after removing the upper bandage.

Hochenegg, of Vienna, demonstrated a cured case of pituitary tumour. The patient was the subject of acromegaly; the tumour was removed by the nasal route with a temporary resection of the frontal sinus. After chiselling through the body of the sphenoid he was able to scoop out the hypophysis, enlarged to about three times its normal size. Three weeks after operation there was great improvement in the headache, which eventually disappeared; vision was improved; and the acromegalic phenomena were beginning to disappear. As early as the tenth day after operation it was observed that the hands were smaller and the fist could be closed. Upon discharge of the patient it was found that his boots had become much too large, so much so that he had to put on three pairs of stockings.

Borchardt, of Berlin, demonstrated two cases of cerebello-pontine angle tumours, in which the tumour had been successfully removed. Up to the present he has operated on seven of these cases, four of which have been successful.

Küttner, of Breslau, reports eighteen intrathoracic operations, nine times by Sauerbruch's method of plus pressure and nine times by Brauer's method of minus pressure. The majority were tumours of the chest wall. There were also such cases as gunshot wounds of the lung, bronchiectasis, lung fistula, and two primary lung cancers, with one carcinoma of the œsophagus in the thoracic portion. Küttner believes the method is a decided step in advance. Physiologically both methods are of equal value, but he considers the method of plus pressure more convenient and pleasant for the operator.

Graff, of Bonn, demonstrated a case of *pseudo-leukæmia infantum* cured by extirpation of the spleen. The child at operation was fifteen

months old, in very poor condition; there was slight leucocytosis, the red corpuscles were down to 1,800,000, and hæmoglobin to 45 per cent. The extirpated spleen weighed over a pound. Success was brilliant; in nine months the body weight had doubled itself. Wolff showed a similar case operated on two years previously. This child also was in perfect condition.

E. A.

MEDICINE.

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON, AND HOWARD.

M. Adler. "The Question of the White and Dark Meats as Food." (Zur Frage uber den Gehalten extractive Stoffen des dunklen und weissen Fleisches). *Berl. K. Wochen.*, No. 8, 1908.

Since the work of Offer and Rosenquist, published in 1899, it has been considered as correct that there existed little if any difference between the effects of the white and dark meats when given in the nourishment of patients.

For many years scientific consideration has been given to the meat bases—fleischbasen—and especially so since the writings of Hofmann in 1869, who found in severe cases of nephritis a great diminution in the kreatin in excretion, has the view been held that meat food in general, and especially the meat extracts should be forbidden in order to prevent an accentuation of them in the system with an overloading of the blood with kreatinin.

This question gained significance when a knowledge of the uric acid synthesis in the body was acquired and its source discovered in the change undergone by nuclein and the Xanthin bodies.

A study of the metabolism of nucleins shows that by destruction of the elements of the cell an equivalent quantity of purin body is formed, which one calls endogenous purin: by "exogenous purin" one understands that purin body formed out of the nuclein containing substance in the food . Either or both these bodies require to be considered or reckoned with—as well these as those precipitated by oxidation, the oxypurin bodies, hypoxanthin xanthin—and as quickly and as thoroughly as possible to be eliminated.

The idea that by retention of any waste products the organism suffers, and of the organs of excretion the kidney in particular, must be admitted, and Gaucher was the first in 1886 to demonstrate by experiment the pathological influence or effects upon the kidney brought about by hypoxanthin injections.

In 1903 J. Walker Hall came to the same conclusion regarding these pathological changes in experiments upon animals with injections of hypoxanthin and guanin, finding in both the liver and kidneys, especially in the kidneys, signs of degeneration in the cells of the tubule. As a result of this, the conclusion followed that the constant presence of purin bodies in all nitrogenous food made it possible for an accumulation or heaping up in the system, and especially in those cases where already the kidney was diseased. Senator advised, along with others, such meats as were poor in extractive substances, such as veal, lamb, young pig and young birds—and most fish—for the food of those with renal disease—and often, too, such meat after the soup and extractives were taken away, and finally only the white meats.

Then in 1896 Van Noorden concluded this question could be settled only on the basis of a quantitative analysis of the food materials in question.

Then in 1899, as we have said, Offer and Rosenquist concluded on their examination that the content (Gehalt) of white meat and dark meat in nitrogenous containing extractive substances as well as in purin bodies showed so small a difference that one could no longer see any cause for considering them different, and, indeed, especially in kidney and gouty patients they stood of equal value, or equally contra-indicated.

The author, considering the foregoing teaching in this matter, set about to find whether or not some explanation could not be found in the mode of preparing the meat, inasmuch as it appeared from the statements made that all the conclusions contrary to the accepted theory and practice had been based on examinations made of *raw meat*. Adler describes his experiments in detail and gives the results in percentages.

He shows (1) that there is a quantitative difference in the purin bodies found in the meat of bullocks and cows when prepared for food which justifies a separation into the dark and white meats; (2) that boiling of white meat favours the withdrawal of these nitrogenous bodies and extractives more than roasting; (3) that this observation supports the practice which may have been empirical, or at all events regarded as such that white meats are better than dark meats in the food of certain patients.

DISINFECTION OF ROOMS, ETC., BY AUTANE.

One of the great objections to disinfection of rooms by formaldehyde vapour, according to Flügge's method, is that a special apparatus is necessary, and in spite of efforts to simplify the technique, it still remains rather complicated. Last year Eichengrünn made known in the *Ztsch. f. angen. Chem.*, a new product, to which he gave the name of "Autane," consisting of a mixture of peroxide of barium and strontium, with paraformol or trioxymethylene. This mixture, inert in the dry state, gives off in the presence of water, vapour of formaldehyde and water vapour. At ordinary temperatures a relatively small quantity of water gives a slow and continued disengagement of formaldehyde vapour. If tepid wated is used the vapour is disengaged much more rapidly, and is diffused at once in the atmosphere. It is a catalytic action, the alkaline peroxide in the nascent state depolymerizing the trioxymethylene into formaldehyde, which in part dissolves, and in part is disengaged in the gaseous state. The efficiency of this substance as a disinfectant has been favourably reported on by several workers, including Wesenburg, Selter, Nieter, and Tomarkin and Heller. Fornario (*Rev. d'hyg.*, Paris, XXX, 1) gives the results obtained in some experiments made by him in the Pasteur Institute, Lille. He conducted his experiments in an apartment of 60 cubic metres (over 2,000 cubic feet), which was not air-tight. He used for this room 2,400 grms. of autane powder and about 2,300 cc. of water from 20° to 25° C., in order to assure the slow development of the vapour, the process of disinfection taking seven hours. Previous observers, with the exception of Nieter, consider that complete and careful shutting up of the chinks, windows, doors, key-holes, etc., is unnecessary, but Fornario found that disinfection was much more complete when the apartment was practically hermetically closed. He also differs from them in this, that whereas they attribute to the gas generated from autane a considerable power of penetration, his experiments show that it does not penetrate, well, *i.e.*, that it is a good surface disinfectant only. The ease with which it can be employed, without special apparatus, renders its use convenient for the rapid disinfection of small apartments, conveyances, railway carriages, consulting rooms, etc. *The Edinburgh Medical Journal,* May, 1908.

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A WINTER CRUISE TO THE ORIENT.

(Extracts from a private Log Book.)

BY

CASEY A. WOOD M.D.

Although Funchal is several hundred miles south of a direct line to Cadiz from New York and the Azores would be a more convenient port of call, there is no doubt but that the wisdom of the director of this cruise was shown in preferring the former to the latter for a mid-Atlantic visit. I had never been in Madeira and thought of it chiefly as a resort for consumptives, and as the country of certain kinds of wine, of a fruit cake, and of a garden creeper. I found it also a winter paradise.

We arrived during the early morning and anchored in a harbor fringed with houses built in an amphitheatre of hills that were covered with verdure. At their base was the blue ocean; on their tops were white caps of snow. From these snowfields (some 6000 feet above the level of the sea) ran mountain streams that formed dozens of waterfalls, generally utilized for irrigating the gardens and groves below. Thus it happens that even in February one eats fresh pineapples, bananas, and oranges from Funchal trees and may pick any sort of tropical or semi-tropical flower. I saw small cottages and garden walls almost covered with climbing roses, trumpet flowers, and the beautiful purple and red bourgainvillia; while two miles up the mountain there were plenty of nasturtiums, geraniums, and other familiar plants.

There is only one decently level and broad street in the town and, so far as I could learn, all Madeira possesses but ten horses and two automobiles. The whole town—sidewalks as well as streets—is paved with rounded seashore pebbles, mostly small and black, arranged in fantastic patterns, smooth ends up. Over these polished, greasy pavements glide ox-carriages (or *carros*) mounted on runners almost exactly like a French-Canadian sleigh. The private conveyances of the well-to-do are quite handsome affairs—well groomed beasts with colored tassels attached to their long horns their foreheads ornamented with shin-

ing brass chains and the polished harness set with bright metal mountings. This sleigh-like carriage is often finished in broadcloth, has a hood, and holds four people. The driver generally walks beside the vehicle and prods the oxen with a long bamboo, while a boy or man runs ahead to warn pedestrians and to place under the runners a sort of greased mop when a steep or dusty part of the road is reached. With such a conveyance one may make, according to local standards, a fairly expeditious and comfortable journey up and down the hills, at a rate not to exceed three miles an hour. But nobody seems to hurry in Madeira.

Another imitation of our winter transportation is the Madeira toboggan. A couple of miles of greased pebble roadway has been built up the mountain side and down it sleigh-like vehicles are guided-by a man on either side holding a rope attached to the forward end of each runner—right into the centre of the town. Before a start is made the pleasure seeker is asked whether he wishes to ride slowly or "to let her go." *We* voted for a mixture of sensations—and got them. Although the fastest rate is, perhaps, not equal to that of the Canadian prototype yet it was fast enough for enjoyment. With the temperature, sunshine and surroundings of an American June, it was an experience to be remembered. E.'s enjoyment of it was rather beclouded by the fact that the men had to carry the basket-like sleigh (weighing about 100 pounds) on the return journey, two miles up the hill.

We took luncheon at the Bella Vista (never was hotel better named) and walked all over the quaint old town before returning to the *Arabic* with our fellow passengers, tired out but happy in the possession of many "snap-shots," bottles of old Madeira, embroideries, cane chairs (they make wonderful wicker baskets here) and loads of flowers.

Among the pictures I took were some of E. standing in front of a *rede,* or hammock. I wished to take her *in* one but a kindly English woman told her that these public conveyances are also patronized by humbler forms of life, after which I could not induce her to enter one!

There are many English residents here and the street signs, notices and advertisements are mostly in that language. Our Canadian fellow-travellers, of which there are about thirty on board, did not fail to point out that the only warship in the harbor besides a Portuguese gunboat was a four-funnel British cruiser with several long guns pointing ominously from their turrets—in case the *insurrectos* might become troublesome.

Among our first visitors were native divers — boys from five to twenty years of age,— the most graceful and expert swimmers I have

ever seen. There must have been 20 or 30 boats with them—generally a rower and two boys—who waited from early morning till night (and incidentally yelled at the four decks of Arabicers) for silver coins to be thrown into the water. They capered about, performing all sorts of feats, such as diving under the boat, from her upper decks, from one another's shoulders, etc., taking as payment coins tossed overboard, which they generally recovered, between their toes or in their mouths. We all had our favorites among the crowd and they, in their turn, rechristened us with such English names as they were masters of. One curly-headed rascal got some of E's money and then mine by always greeting her with a broad grin and a "good morning." Me, he kindly called "Buster," and Buster I have been ever since. When the boat sailed they followed us, shouting and yelling, far out to sea, waving their scanty garments as long as we could make them out in the distance.

To the medical man the climate of Madeira is of interest. The average summer heat is 74° F.; the average winter temperature 64°. Except in the mountains, frost is unknown. Owing to these conditions, and to the fact that the near-by mountains furnish any altitude required at all seasons of the year it ought to be an ideal resort for tubercular patients.

Cadiz (better pronounce it as you would the plural of the small boy who carries your golf clubs) is built on the tip of a peninsula running miles out to sea, of marble, whitewashed stucco and stone. There are only sixteen stoves and one factory chimney in the town, so that from the *Arabic* it looked at sunrise and sunset like a veritable white city rising out of the ocean—beautiful to behold. A nearer view was not quite as satisfactory owing to the narrow streets, but the street scenes were very interesting. We have seen the Andalusian dances (by some called the "delusion dances") with the accompaniment of the tambourine and castanets, but they were not particularly graceful or animated. I suppose the Vaudeville and the "Follies of 1907" have spoiled Americans for the Tarantella type of dance. Even the old lady from Worcester said she didn't think there was much "in them tarantulas anyway."

The ever useful, overladen, patient little donkey shines like an effulgent star in the labour firmament here. In Andalusia it seems as if "nobody works but *burro*;" certainly he labors more persistently than any Spaniard our eyes rested upon. Often we saw one of these little animals, not much larger than a Great Dane, with two enormous panniers, filled with vegetables, that almost touched the ground on either side of his body, come ambling along with a big Spanish brigand seated

on his back and smoking the eternal cigarette. And such cigarettes! R. bought a package and smoked about an inch of one. He said he *could* smoke the other half but would like my opinion as to its probable effects upon his constitution before doing so. Eventually he presented them to a bearded pirate with a frayed cloak that passed his way.

Real cigars and genuine cigarettes cost about three times the American price owing to the enormous internal and import tax on tobacco; indeed, everything is taxed to the limit here. Even salt, mostly made by evaporating sea water in the marshes along the coast, is a government monoply. On our way to Seville we passed hundreds of dirty-white pyramids of salt (15 to 20 feet high) awaiting transportation, manufactured in the adjoining trenches by the rays of the hot summer sun.

The thing that interested us most in Cadiz was Los Capuchinos, in the chapel of which Murillo painted his last picture. Falling from a scaffold during his work he received injuries from which he died soon after.

They don't like us in Cadiz, and I don't blame them because undoubtedly the so-called Spanish-American war added to the grinding taxation from which they now suffer. E. and I went for a drive about the town and we were several times greeted with hisses, surly faces and cries of "Americanos." Although the climate of Cadiz is usually balmy and pleasant in winter, it is, owing to its exposed situation, liable to sudden charges. It cannot, therefore, be recommended to invalids. Interior towns, like Seville, are more attractive for a winter residence, although even they are quite cold at night and are subject to occasional disagreeable falls of temperature.

We had perfect weather for our trip to Seville, and found the first-class railway carriages clean, well furnished and very comfortable in spite of the native equipment and the little 1865 Belgian locomotives. It is about 100 miles from Cadiz and we "did" the distance in 5½ hours. But that was because, as S. explained, "we" stopped at so many "cantinas." S. is making grand progress in his Spanish since he discovered, without extrinsic help, that cantina is that part of a railway station where "vino" can be had for 40 centimos a drink. After that discovery he invited me to partake. I did so *once*—and *such* wine. I told him wine did not agree with me; I would smoke one of his cigarettes.

The conscription in Spain seems to take in some very young men. In the train was a carriage containing a number of these boy soldiers returning home — youths of apparently sixteen or seventeen. They were dressed in parade uniform, smoked many cigarettes and looked

pleased all over. At a small village two of them got out as the train drew up, when a mob of about 100 men, women and children rushed from the platform and welcomed them in true Spanish fashion. With cries of "Pepe" the crowd literally fell upon one boy's neck and almost choked him. Four men, six women, and two small girls tried to kiss Pepe at one and the same time. As this proved unsatisfactory they divided into sections and Pepe was systematically hugged and kissed, first on one cheek and then on the other, by the whole village. When we last saw them, each boy, surrounded by a small company of fellow-citizens, was being escorted home. I hope they all had a good time that night—and that my camera has a faithful picture of their home-coming.

As we approached Seville (I much prefer the liquid, Spanish pronunciation Sevillyah))the fields become more green, and we noticed acres of clover, peas, lentils, etc., gardens of flowers, groves of oranges (flowers and fruit) as well as peach trees in bloom. The fences were mostly made of cacti (occasionally in flower); while browsing in the fields were flocks of sheep and herds of cattle. It is in this region that the famous Andalusian bulls are raised, of which we saw many good samples. They were big, black, shiny fellows with long horns, and certainly deserved a better fate than being sacrificed to make a Spanish holiday. Incidentally, some of us visited the bull rings at Cadïz and Seville, but I don't think even Stars, who made much money in cotton last year and is now taking in everything on this trip, tried to see a bull fight. The smoking room opinion is against it. At least, R. told him we "wouldn't stand for it," but would get him a permit to see the hog slaughtering in Chicago if he liked. In spite of all the glamour sought to be thrown about it in Seville, where they have one of the largest rings in Spain, I believe the "sport" is just as cheap and nasty, as nauseating, cowardly and brutal as it is in Mexico.

The stuccoed, whitewashed towns along the road to Seville are very attractive—in the distance—and all have the towered churches so common in Southern Spain. Fordyce pointed out that most of these had at least one stork on the roof and then, he added in a pensive tone, they are overworked birds all over Spain.

Young girls with bright fresh faces, beautiful eyes and a wealth of black hair, are seen everywhere, but always accompanied by a duenna, dressed in black with a mantilla thrown about her head. E. does not like that form of head dress, but I think it is becoming—and so cheap.

The Hotel de Madrid in Seville is a comfortable house of entertainment in winter if you have plenty of blankets and a hot water bottle;

because, like most dwellings in semi-tropical countries, it becomes quite cold as soon as the sun sets. We found in the pretty hotel courts palms and other plants, including climbing roses in full bloom, but no heating apparatus.

The guide book tell us that the *sereno,* or night watchman, cries the hours to the accompaniment of the *Ave Maria* at the street corner. We kept awake until midnight but no *serenade.* I am going to ask McClurg to return to me the $2.50 I paid for such unreliable literature.

E. found the lock to our bedroom door; it consists of an iron bar six feet long with attachments strong enough to keep out even a Spaniard, but we decided to trust to the other lock, the key of which is seven inches long and turns in the huge lock with a noise loud enough to call the chambermaid. No danger of carrying off that key, or, if carried away, in a forgetful moment, of returning it for two cents by way of the mail.

Our main object in visiting the city of Seville was to see the Murillo pictures, the Cathedral and the Alcazar.

For years a Braun photograph has hung in my office out of whose frame the lovely face of the Perla de Sevilia shone upon me and I looked forward with the greatest pleasure to seeing the original. We found it in the Museo with some twenty other Murillos but, somehow, whether it was the poor light or what not, we were dissatisfied; it did not seem to be as attractive or as well preserved as the Immaculate Conception of the Louvre. The gorgeous blues and browns that are (to me) Murillo's chief charm, were present, it is true, in the Perla but they did not impress me as I expected they would, and I went away sorrowing—into the balmy air and blue skies of the streets. Outside the endless procession of pannier-laden donkeys, strange men and women, barefoot friars, and dark-eyed senoras and senoritas through the narrow, winding streets made me forget my disappointment in the pictures. Altogether I subscribed to the German phrase: "Wen Gott lieb hat, dem gibt Er ein Haus in Seville."

The King and Queen are now visiting Seville and we were not allowed to enter any part of the Alcazar. In place of this we had to content ourselves with driving through the public gardens and with seeing gold-laced officers and other court attendants.

It was not that the Cathedral is, next to St. Peter's, the largest in the world or that we were lucky in hearing High Mass with all the grand organ accompaniments, but the magnificent interior with its beautiful stained windows and elaborate carvings appealed to us more than any of the other European temples—more even than St. Peter's or St.

Paul's. The General and his wife returned with us next day for a three hours visit and we found that the impression remained. Between the four of us we tried to recall Milton's lines from "Il Penseroso." My own contribution was a very meagre one: "Storied windows richly dight," but it seemed appropriate to the wonderful panes through which the colored sunlight streamed to the floor below. I think I shall never forget that interior, or the Giralda Tower—the Cathedral Campanile—of the exterior.

Whatever else our party buy or do not buy they always invest in picture postal cards. E. has investigated the subject and believes an average of one dozen a day is not an excessive estimate for each *Arabicer*. I happen to know an exception. One tradesman from whom we purchased a few castanets and things confided to me that an "Americaine" had been in his shop since early morning, had "borrowed" his boy to show her the way to the Cathedral and had then taken most of the afternoon to examine his stock—and made no purchase! I tried to console him by explaining as nearly as I could our plan of "shopping," but I must have failed because he could not understand. The General, who overheard the conversation, said I should have told him he was no worse off than the apostles "who had toiled all day and caught nothing." Later on I discovered the reason of the shopman's excessive indignation. El Pais, a Seville paper, in describing our excursion to the city, had described us as "a party of four hundred American millionaires."

E. and I had "done" Gibraltar pretty thoroughly on a previous visit so we contented ourselves with staying on the ship to watch our compatriots bargain with the visiting Jews, Spaniards, Moors and Portuguese, who brought their wares on board as soon as the tenders had taken the various parties ashore. The *Arabic* was soon converted into a sort of bazaar that exhibited as many varieties of goods as Westport Street and Gunner's Lane together; the decks resembled an overcrowded Kermesse. Spanish and Maltese laces, mantillas, tablecloths, scarfs, every sort of jewellery, leather work, etc., were offered by dark-skinned men who talked and laughed and haggled and gesticulated and expostulated until the sound of bargaining must have attracted the attention of the sentinels about the Great Rock. The rules of the game are those that govern purchases all over the East. There is an upset price below which the seller will not go; but no one except himself knows it. He at first asks from three to four times the amount he is eventually willing to take, and the purchaser, if he understands, bids from one-fourth to one-third this sum, which is modified alternately by purchaser and peddler until, after a time, an agreement is reached. It is a curious performance and often worth seeing.

The Canadians on board have just returned from the Signal Station and other exclusive parts of the fortified rock, each saying beneath his breath, "*Civis Britannicus Sum*" to their envious American fellow-travellers, for only British subjects may penetrate the secrets of Gibraltar.

E. was watching the sun set across the harbor yesterday when she happened to look into the water below and noticed a black cat—one of our ship cats—struggling in the waves alongside. Pussy had fallen overboard and was making desperate efforts to swim and was encouraged in these attempts by a couple of sailors who had noticed the tragedy and were making signs to a native boatman to pick up the struggling cat. Soon a hundred people were leaning over the taffrail, adding their advice. Native boys finally threw a coil of rope around the cat's body and succeeded in pulling her aboard amid loud applause. She was then hauled, after much pawing of the air and twitching of the tail, on to the *Arabic* by means of another small rope applied behind her shoulders. On reaching the deck she emitted several loud "miaows" indicative of disgust, indignation and injured innocence, and disappeared to her quarters. Meantime E. donated one peseta to the fund for impoverished native sailors which was deposited in the floating bank beneath her. R. believes the whole affair was concocted by the imp. nat. sailors aforesaid who will repeat the performance at their earliest convenience. But R. is a sceptic at all times. I heard him tell a lady who paid sixty pesetas for a *genuine* Spanish mantilla (marked down from 130 pesetas) that it was cotton, machine made and was worth in Paris (where it was manufactured) about a dollar and a half.

Not even Lorenz's "Mediterranean Traveller" prepared us for the surprises of Algiers. Surely a more picturesque city does not exist. The water front shows a fine modern town—very like a section of Paris near the Madelaine—with imposing jetties, buildings, boulevards and gardens extending for miles. Higher up on the hillside, white, windowless, stucco houses of Eastern aspect begin, and these constitute the chief part of the remarkable picture one sees from the Bay below. We took a two-hours' drive through both the French and the Arab quarters to the heights above on a road bordered with gardens of flowers and groves of oranges, quite as good and far more imposing than the Corniche Road or the roadway along the Italian Riviera. In the city itself we met Moors, Arabs, Turks, Egyptians and all other manner of Easterners. For fuller particulars see the guide book.

R. bought a pair of opera glasses on shore from a descendant of the prophet, for $2.50. He said they must be cheap because the man's first price was $14.00. At any rate he said the man and he consumed about

50 cents worth of the former's time and he learned $2.00 worth of French and some other language he "didn't quite catch"—so that the account is square. R. said he also assisted in an "antique," oriental rug sale, held in a dark arcade near the boat's landing. Twenty-seven first-class cotton rugs (made in Lyons or Marseilles and colored with anilines) were sold by orientals to *Arabicers* at prices that defied competition. R. says the rugs were not the only objects sold at *that* sale. He intends taking his future deck walks at night for fear he may see the "antiques" by daylight.

Capt. H. is always joking about the quality of the milk served on board and drags in a number of ancient remarks about the *Arabic* "cows." To-day his daughter induced him to rush on deck to see some animal that had fallen overboard. He found a crowd of his party who pointed out a two-gallon tin of condensed milk that had been condemned and ejected from the cook's galley. Probably we have heard the last of the cow joke.

There will be a concert by the ship's Musical Club this evening to celebrate Washington's birthday, but we have decided not to go; we heard them rehearsing in the aft saloon.

E. thinks she would like to go on to Biskrah and see the "Garden of Allah," but as we cannot do this without missing Malta, Athens and Constantinople, we shall have to forego that pleasure. Anyway, "A Woman's Hardy Garden" ought to satisfy any suburban resident. It has often been more than enough for me.

E. is reading up Malta in Lorenz, but I notice that her studies are confined to such topics as "hand-made laces," "native jewelry" *et hoc genus omne*. I asked her the name of the Grandmaster who surrendered the island to Napoleon, and she replied, "Ivanhoe." I have had similar answers to questions about the language of the natives, the names of the other islands of the group, etc., from which I conclude that my wife thinks Malta belongs to Italy and that the chief exports are cats, and the art products just mentioned. Well, perhaps they are; we shall see to-morrow.

If there were any indignities practiced on our fellow Arabicers by the Algerines the former retaliated in kind—by talking French to them. The General says he overheard one self-satisfied lady, who had previously confided to him that she always speaks that language when abroad, ask the "cocher" the name of a large hotel seen on a distant hill that overlooked the Champs de Mars where a cavalry regiment were parading. He replied that they were "*chasseurs d'Afrique*" engaged in manœuvring and then proceeded to explain the origin of that particular branch of

the French arms. When pressed by bystanders to interpret she said, with a superior air, "Oh, that's the Hotel of Africa; it holds 300 guests and cost a million francs." While buying some stamps at the Algiers post-office I assisted the very patient and polite clerk in convincing some compatriots from Pennsylvania that although *their* country is undoubtedly the largest in the world the Algerine postmaster is forbidden by law to accept American nickels for French postage and that probably even they could not buy many U.S. postal cards at Pittsburg with a two-franc piece. On my way out an indignant fellow-citizen said the French were so mean, they would not sell him any stamps at all, although he had addressed the clerk in his own language and had even held out a handful of hated French money. I returned to the charge with him and found he had been trying to buy postage labels from the weary official who presides over the money order department! I imagine Algiers was gladdened by the noise of our anchor-raising.

E. and I are curious to see Malta, although William, our stateroom steward, who is a great chum of my wife's, has just been telling her terrible stories about the thieving propensities of the native population. "You see, ma'am, they'd sell you a beautiful singin' Canary bird lookin' right hinto your high and change it heven when yer back wasn't turned." William also avers that they come on board laden with screwdrivers, knives and skeleton keys prepared to relieve the innocent passengers of their shekels instead of impoverishing them, as they might easily and more honestly do, by way of the silver filagree and lace route. William believes that nothing but their excessive weight keeps these people from running off with the ship's anchors. However, every day except that spent in New York harbour has been so extraordinarily fine and the sea has been so smooth that we feel we shall be able to look even Malta in the face and—

"*Quidquid erit, pati.*"

II.

The Maltese boatmen did not belie the character attributed to them by William, our stateroom steward. Even before we had anchored, the water about the *Arabic* seemed to be covered with a confused mass of gondola-like boats crowded with shouting, gesticulating, sailor-peddlers who acted as if they intended to take our ship by boarding as in the old piratical doys. Their cries reached E. in her berth. She dressed hurriedly and reached the deck just as the gangways were being lowered to permit the first detachment of Arabicers to go ashore. The Maltese pirate closed around the ladder-like stairs like flies. "Do please, kind gentlemen, let me up." "Kind sir, here is my license," said they, holding

up a paper. The boats provided to take us ashore were violently pushed aside and a dozen pirates jumped upon the lower gangway and tried to force their way up the narrow steps past the quartermaster. They grabbed the ropes, threw their bundles ahead of them and tried to swarm up the ship's sides. The quartermaster yelled to them to keep off and asked the officer in charge for help. He hurriedly ordered three sailors to the rescue and they did their best to repel the boarders. But in vain, because from a confused mass of struggling legs, arms, boxes, bundles and brass buttons there emerged, one by one, a victorious Maltese who raced on deck, pre-empted the most favorable spot he could find for the purpose, spread out his goods and was ready for business. It seems that only a certain number of these peddlers are allowed on board, and it is a case of "first come first served." The disappointed ones, after much noisy display, rowed about the *Arabic*, holding up various objects of merchandise and calling upon the passengers to buy. They were also quite ready to pass up ("on suspicion," as E. H. might say), by means of a basket and rope, any article that a passenger might have been unwary enough to evince an interest in.

R. and I, while our wives were leading themselves into temptation by inspecting the Maltese laces, embroidery, carving, etc., spread out along the promenade deck, had a preliminary look at the wonderful harbour and town of Valetta. We were anchored not more than a hundred yards from shore and had a good opportunity of studying the strata of fortifications that rose with the city, tier upon tier, almost mountain-like, to the sky line. It was a wonderful sight, almost as remarkable as the storied view of Algiers. The stairlike streets that led to the upper town began in a broad esplanade below that formed the water front and that was finally lost in the extensive stone fortifications and piers that stretched for miles around the enclosed harbour. We were told that these massive cut stone, granite towers, bastions and walls, pierced for hundreds of guns, represented successive additions to early Phœnician works and were built by Moslem, Knightly, French and English conquerors. The real defences, however, are, we were informed, not visible to the ordinary observer, but are concealed by pits, trees and other screens, behind the town or on convenient artificial islands in the harbor. William says, "them (indicating the martial array of cannon mounted on the casemated and embrasured walls) is only for show; there's the real forts," and he pointed to some dozen or more dark, grim-looking monsters lying at anchor half a mile away—the British cruisers and battle ships. Our William is a proud patriot who has sailed these seas for twenty-five years, and probably knows as

much about the subject as the numerous guides, who resemble the light that lies in the depths of my lady's eyes,

"and lies, and lies."

The small leaflet of instruction that is issued to each *Arabicer* on the day before we reach port, warns us against buying Maltese dogs, owing to their cost, their delicate health and the impossibility of bringing them to America. This, of course, stimulated our curiousity to see these abnormal pets and we applied to the General who has been over this route several times. He maintains that there are, strictly speaking, no such animals as Maltese dogs, although there may have been at one time a special race of canines on the Island. And cats—well, they are like the dogs. R. and I, consequently, called for cats and dogs every time (about once in two minutes) the street guides, pedlars and cabmen offered us cathedrals, postal cards or carriages. This persistence finally produced an effect, because the news soon spread that two (mad) Americans wanted animals. We were, after a time, surrounded by a yelling mob with (American) cats and white French poodle pups—not to forget a fringe of milch goats whose owners came determined to furnish milk from the "source," in our immediate neighbourhood and presence. The net product of those offerings was a doubtful snapshot which, I trust, will show what we flushed in Malta of the feline, canine, caprine and human species. R. thinks our lives were saved on that day only by a determined charge of two native policemen. At any rate we proved to our own satisfaction that there are now no Maltese cats or dogs in Malta.

Of course, we had to visit the ornate, as Capt. H. says, "built in the higgledy-piggledy style of architecture," Cathedral of St. John. The begilded, bemarbled church is a huge mausoleum, mostly tenanted by the ghosts of Grandmasters of the Order of the Hospitallers of St. John of Jerusalem. According to the pompous Latin inscriptions on the coloured marbles that form the pavement of the chapels, they were the incarnation of all the vigorous virtues. Fordyce stood in front of one tomb of this kind and repeated:

"The Knights are dust
And their good swords are rust—
Their souls are with the Saints, we trust."

At any rate they stirred the European "pool" during the time they sailed up and down the Mediterranean, and medical men must not forget that they had their rise in the first Christian Hospital in the East and only melted away before the sun of Napoleon's glory.

The nice girl who sits at our table has been reading "The Talisman" "to get the local colour." She took the long journey (seven miles there and back) to view St. Paul's Bay, which we passed in the morning on our way to Valetta. William called me early and said, "if you will get hup and look hout of your porthole you will see, just opposite, the place where St. Paul was shipwrecked." E. reached our "window" first and said, "why, it looks just like any other coast." I dressed at my ease, and going aft, encountered R. We climbed to the hurricane deck and found one of the officers, who said, "we shall be passing St. Paul's Bay in about fifteen minutes; better look at it." We did so with R.'s lately purchased glass. We saw an indented landscape with no trees and some low-lying rocks. In about half an hour I wandered back to the promenade deck, where the Reverend Mr. Jones, surrounded by a breathless flock, was reading from Acts the original description of the place "where two seas met," and, suiting the action to the word, was indicating with his hand each coast feature as we passed it. "Probably, ladies and gentlemen, that spot," pointing to a pasture-like elevation on the nearest shore, "is where the apostle shook the deadly serpent off into the fire—and stood scathless." Later, we spoke to the second mate on the subject; "Oh, St. Paul's Bay, *that's* on the other side of the Island; we can't see it from the boat."

On our way back to the *Arabic* that evening Mrs. R. and E. suggested that we walk down the stairs to the landing, and we felt amply repaid for our trouble. The glimpses we obtained of the harbour, shipping and fortifications, framed by the outlines of the houses in the narrow streets, were entrancing. Incidentally, I got some snapshots of the Maltese women, most of whom still wear the *faldetta*. This is a combination of sunbonnet and silk cloak that takes the place of parasol and coat under which one may safely and privately carry any burden, whether it be a loaf of bread, a basket or a bundle. Only E.'s assurance that "we had too many things already" prevented my getting one for M.'s private theatricals; it was so picturesque.

We steamed out of Valetta harbour with flags flying, the band rendering "God Save the King," and the officers standing at attention. The nice girl at our table remarked to my wife at dinner, "Isn't it fine of those British officers to stand with their hands to their caps while the band was playing 'America'?" And E. said it was.

During the twenty odd years E. and I have been crossing the seas we have never ceased to wonder at the marvellous quality of the bread and coffee served on British ships. With all other things of the best these have continued to be the worst. It isn't that they *are* of the

worst, but the exasperating consideration is that in spite of the example set by French and German boats, one should steadily encounter chicory and "grounds" that masquerade as coffee, as well as that sodden, potato-pancake denominated bread. Of course your table-steward knows all about the Continental and American complaints, but he thinks, if he thinks anything, that U. S. passengers are unaccountable particular in some things. The General believes that the persistence of the British bread and coffee is merely one expression of that fundamental virtue in their character—a sterling conservatism. Having served that brand of coffee and that sort of bread on the *first* ship and brought her safe to land, they stolidly keep at it until the end.

We had a lecture on Athens by a reverend gentleman, who gave us eloquent scraps of Greek history. After the usual reference to Phidias and Lycurgus, "and other dagos," quoting the man who sits at the head of the opposite table who made money in Cincinnati real estate, he could not finish his essay without referring to the "*poluphosboio thalasses* through which we are now ploughing to the Athenian harbour." "What's that?" asked the nice girl at our table of her companion—a youth who sat next her. "Oh, he's only showing off his French," was the reply.

They have celebrated canary singers at Malta, and nearly everybody bought a bird. The General bought two, and now he says he wishes he had also found that Maltese cat. His two birds sing both day and night. Our William purchased one, guaranteed to break into generous strains in a day or two, after it had got accustomed to its new surroundings. I saw him chirping to the bird, and asked him why it didn't sing. "I don't know," he answered, and then, with a kind of sigh, "the smoke-room steward says hits a bloomin' 'en"; all of which is a considerable consolation to E. after she had acquired that hand-made lace in Algiers. I understand that a self-appointed committee of ladies has decided that it also is a "bloomin' 'en."

On the morning of the 26th of February we awoke to find ourselves approaching the Piraeus, the seaport of Athens. It was cooler and more cloudy—the latter consideration preventing our seeing the Acropolis and Lycabettus until we were fairly near. I suppose if we had been homesick Greeks of the old days on a return voyage from Alexandria or the Pillars of Hercules, we would have strained our eyes to catch from the Parthenon foreground the glint of the sunlight on Minerva's gilded spear-head. As it was, we had to be satisfied with imagining just what the statue of her ladyship looked like.

The *Arabic* is the largest vessel that has yet entered the inner harbour, and we approached the task very gingerly. The Greek boatmen con-

stitute a strong guild and have prevented the government from building piers that will permit the approach of deep-draught steamers. Consequently, we landed by way of small sailboats and tenders—quite romantic in smooth weather, but not so pleasant when there is a stiff wind blowing. E. was not feeling well enough to brave the fatigue of an all-day drive to and about Athens, so I allied myself with the General and his wife and we greatly enjoyed our trip. The weather was cool and sunshiny, although we learned that there are other towns besides Chicago that can "raise the wind." On the Acropolis Mrs. General took a number of pictures (with the other two members of her party for a foreground generally holding their caps and coat-tails to keep them from being blown into the theatre of Dionysius below) which she feared would be found rather shaky when they were developed in Jerusalem. The General proposed that we retire to the nearest *zendodecheion* and pour out a libation to Aeolus, but as he afterwards confessed that he had never indulged in Greek wine, I forgave him.

The last time we were here the northwest angle of the Parthenon was "shored up" with timber work to repair a portion of it. I was now glad to see that it had been taken down, although not so pleased to find that the timbers are being employed to "restore" the pretty little temple of the Caryatides. The Athenian ruins, except the lovely temple of Theseus, *are* truly ruins, but I don't think, as a choice of evils, that extensive restoration is desirable except when, as in the case of the marble Stadion, it is necessary to make structures available for a useful purpose.

After the drive our party, having done its duty to the antiquities, proceeded to luncheon and to shopping. My companion and I called on our Consul-General, known to both of us as an old Chicagoan, and author of "Modern Athens," as well as a number of other books. It is a pity that so few people have read that pretty little story dealing with modern Greek life, entitled In Argolis." Howells says of it: "In 'Argolis' is one of the most charming books that any American has written about the life of another people, and in describing the little Greek town where Mr. Horton spent a summer, he has done one of those instantaneous classics..... it is delightful, every word of it, with just that mixture of the epic and idyllic and domestic and divine that is peculiarly American." In my poor judgment, the chapter devoted to the account of moving his household goods from Athens to the Piraeus, by means of two Greeks and a native waggon, is one of the funniest narratives ever put in print. The sad history of the poor rooster that formed a portion of these effects is particularly well told.

I have been advising those Arabicers who wish to obtain a good idea of the people of modern Greece to read Horton's books.

After luncheon R. and I went about on foot to see the street life in the poorer quarters. These were clean, in spite of the narrow streets, and of their marble-dust covering converted into paste by the recent rains. We stopped to buy beads of two kinds. One variety the Greeks all over the East use to occupy themselves as a relief to their nervous system, instead of twirling the mustache, chewing gum, etc. It is certainly a curious sight to see men of all ages and occupations, turning these beads about, generally pulling two or three of them back and forth on the string when they have nothing else to do. Perhaps, after all, this occupation is better than twiddling one's thumbs or "whistling for want of thought." The other purchase was a set of beautiful blue beads with a pendant blue heart set with white cowries, with which the natives are wont to decorate the heads of their goats, horses and oxen (particularly the last) for the purpose of averting the "evil eye." The evil eye is said to be attracted by the beads and neglects to injure their wearer—all of which, R. says, is about as reasonable as some other means he has heard about of accomplishing the same end.

When we were waiting for our change in one of the shops we watched the method of converting English shillings into drachmæ by means of the abacus. These calculating machines are apparently not so much in evidence now as they were when E. and I visited Athens ten years ago. Probably the shopkeepers have since been taking lessons in mental arithmetic.

We went into what in America would be called a "low" saloon to get some *vinos resinatos*, the resinous wine of the poorer classes, and some of the "refreshments" that go with it. The latter consist of rancid goat's cheese, pickled nasturtium seeds, pickled horse beans, carrots, and what R. declared to be "pickled eel's feet"—for I wasn't equal to tasting them. We took as much as half a teaspoonful each of the pine-gum wine, and "let it go at that."

The General heard of our adventures with this Greek drink and at my invitation partook of it. He fared no better, and was in addition obliged to listen to my imperfect rendering of his favorite author in this connection:

> "Vile potabis modicis Sabinum
> Cantharis, Graeca quod ego ipse testa."

Even Horace cannot remove the taste of shellac from one's mouth!

We rode back to the Port over the beautiful, broad, tree-fringed boulevard stretching straight as a die to the Piraeus, the gift of a rich Greek

from Alexandria. The General sat on the box and "talked Greek" with the driver; that is, he and I contested the honour of deciphering the street signs and notices, and then asked that authority how to pronounce them. How proud we were when we recognized a familiar word! And yet some people say there is no use studying Greek at college for more than three years! The General says several Arabicers bought the Athens "Chronos" for the purpose of securing the latest American news, but he has failed to hear from them since, although we are assured that anyone who can translate Xenophon at sight may also read the Greek newspapers, barring such words as 'pickaninny' and 'steamroller.'

Louis the barber, who does "developing" and a roaring postal-card, photograph and flags-of-all-nations business, told me that my films turn out better than those of any other Kodacker on board, better even than the best talker in the Arabic Camera Club. I was puffed up exceedingly for nearly four days until I overheard him confiding in another amateur photographer that "*his* films were the finest, etc." Louis understands exactly not only how to extend, but how to bolster up trade.

Our run to the entrance of the Dardanelles past the "shining" Cyclades, as Horace has it, was classically correct because, as we sailed by night through the Aegean Sea, our course seemed to be marked out by the lights on the shores of such islands of the Archipelago as hove in sight. And, of course, we were reminded that an *archipelago* is a body of water that resembles this sea (the sea of seas) in being filled with islands.

E. thought we had better try to engage the dragoman we had on our previous visit to Constantinople and to "do" the town independently. I accordingly wrote from Chicago asking him to meet us at the boat. When the tender reached our side (after the passport ceremonies had been completed by the aid of certain Turkish custom house and police officers dressed like Major Generals) we spied Paruta, wearing the only cowboy hat I had seen for three weeks. It was a damper on our enthusiasm, however, when we found that the same Paruta had risen in the world and had charge of the whole party in Constantinople. Nevertheless, he was very glad to see us, got us an excellent guide and was of considerable help to us in many ways.

In striking contrast to other towns we had visited the Turkish capital seemed more oriental, more weird, more hopelessly out-of-date and more solemn than before. Perhaps it was because it was winter (we saw it before in the summer time) that it did not seem as beautiful as on our previous visit. It was not until the sun was setting behind the lovely mosque of the six minarets (Achmed First) that the extreme pic-

turesqueness of this city of seven hills burst upon us. A pink light was reflected upon the houses of Scutari opposite, while a golden glow spread to the background of the Galata Tower, Pera and the European quarter to the north. If to this could have been added its usual summer verdure (for the city is really a town of trees) we would have said, as we did before, that *from the water* Constantinople is certainly the most beautiful city in the world.

There are several stamp collectors on board who hunt up the post-offices in every town we visit and spend their money in acquiring samples of all the stamps they issue. No one has done this in Constantinople, because not only Turkey, but Great Britain, France, Germany, Russia, Austria, Roumania and, for all I know, other countries, have post-offices in the larger Turkish towns, that all issue an imposing array of stamps. R. says if a man wishes to be safe, he ought to mail an original letter in the Turkish office and send carbon copies by way of the others. At the Pera Palace Hotel, where we took luncheon, the rotunda has six brazen letter-drops for corresponding post offices. They were all polished like the rising sun and must have consumed much annual sapolio to keep them in good condition.

If the distant view of the city did not impress us as it did ten years ago, the Galata bridge and the so-called Tomb of Alexander in the Imperial Museum affected us more. The former resembles the Canyon of the Colorado in that no words can describe it, especially when the full tide of eastern humanity is pouring across. E. and I drove over several times, and we both wished we could stay a week and do nothing else but drive back and forth from Pera to Stamboul, across the Golden Horn! The General thinks the irregular plank road that constitutes the bridge pavement would soon shake us to pieces.

The bazaars were as bewildering as ever, and in them we would have been hopelessly lost without our guide. E. has not entirely recovered from her repugnance to bargaining, and generally leaves the matter to me. As long as she does not express a too evident admiration for an article, and retires to a distance where our voices cannot be readily heard, the process is rather simple; the oriental dealer asks a certain price which (in Constantinople), if one goes about it properly, falls to about one-half to one-third the original sum.

In the midst of our visit to the large bazaar of the son of Faraway Moses (proper name, Levy) E. found she had somewhere lost her muff. Everybody scurried about to find it, when the General said, "let us telephone to the hotel; perhaps she left it there." I had my misgivings, but we sought Mr. Levy. He is, among other things, an

admirer of our Republic. "We cannot telephone, because we have no telephone. There are none here, because the Sultan does not like them; nor can you send a code telegram. But," said he, sinking his voice to a whisper, "*some day,* we shall have them." However, just then a clerk came to say that the lost had been found behind a counter. E., with her thoughts wrapped up in Turkish embroideries, had dropped it.

St. Sophia was the only mosque we visited, although we tried to see the interior of the Pigeon mosque and of Achmed I., the ones we liked best when we were last here. It seems that since the violent death of the King of Portugal the Sultan has had another fright, and the visits of strangers are not encouraged—not even Americans, who have more privileges in Turkey than any other people. We live far away and haven't, so far, had any large hand in Turkish politics. At first we were told that even St. Sophia would be closed to us, but finally our ambassador "arranged" the matter. The Captain says, he supposes the Minister of Religious Instruction got the entrance money. We were admitted in small bodies, and a Mollah accompanied each one to see that we didn't steal any prayer rugs, laugh or talk out loud, write our names on the marble walls, make fun of the slippers we had to wear about the sacred edifice, or disturb the groups of worshippers that were prostrating themselves before Allah all over the place. Our Mollah, a young priest about 23 years of age, bundled us out *sans ceremonie,* and I was not sorry, as I did not much enthuse over St. Sophia the last time I saw it, and it seemed cold and forbidding this time. When we got inside it was mid-afternoon and we were just in time to hear the call to prayer from the surrounding minarets. The roar of the big city, especially of the carriage wheels on the cobble stone pavement almost drowned the priests' voices, although most of them "helped out" by holding their hands to their mouths. "Why don't they use a holy megaphone?" said the real estate man from Cincinnati, who was waiting to hear that "Allah is great."

When we reached the boat to prepare for sailing next day, E. insisted on having William shake our outer clothing over the ship's side in memory of our previous sojourn in the town, and yet we had not noticed as many dogs as before, and had certainly not stopped more than twice to admire a family of puppies.

Every man, woman and child on board purchased a fez, and most of them are wearing it. We have a goodly number of Armenian and Greek guides on board, and when a brunette American assumes this headdress and a cigarette, it is difficult to distinguish his place of birth, unless he talks. Fordyce applied to one of these pseudo-orientals

for information about the trip to Galilee, and was told that on account of the desert, the party would go from Caifa by balloon, and float down the Jordan to Jerusalem. He also learned that we land at Joppa by means of rope-baskets and journey to Damascus in automobiles, all of which Fordyce repeated, with his usual watery smile, to two biblical enthusiasts who were waiting for the information.

To-morrow morning we land in Smyrna, and if E. can only see the bazaars and another camel train she will be happy for the rest of the day. As for the Captain and myself we have sworn to have a cup of real coffee and real bread—such as his cook at home makes—if we have to break into the *Club des Etrangers* to get them. I understand the Captain has a letter to one of the members. Yet the ship's coffee has improved lately, because if you leave out the cream, it can be differentiated from the tea, whereas earlier in the trip it couldn't.

III.

We sailed in the afternoon as far as the Black Sea so that the Arabicers might see the sights along either bank of the Bosphorus—past the narrows across which Leander, Lord Byron, Xerxes and many another bold adventurer has swum, sailed and rowed. To remind us that the environs of Constantinople is a summer resort we passed the country villas of merchants, foreign embassies, and the palaces of the Sultan and his nobility. The residence of the Ottoman Emperor (Yildiz Kiosk) is plainly seen from the steamer deck. It is a huge enclosure—a small town in itself—with buildings of all kinds brilliantly lighted by electricity. And thereby hangs a tale, for the truth of which the Senator vouches The Sultan had for some time been flirting with a proposition to adopt the new form of illumination which, at first, he had not regarded with favor. Finally, he gave an order to an English firm to submit plans and to exhibit its apparatus. A part of the grounds was at first wired and the power plant shown to his Majesty. "What are these?" he demanded. "Oh, those are the dynamos," said the proud agent. "Then," replied the Sultan, "stop the machinery and get out; I shall allow no dynamite or anything related to it here." In vain did the representative of the company assure his Majesty that this part of the machinery was not even remotely related to explosives, but in vain; the Sultan went back to the Standard oil product. Hearing this, an American agent, after much diplomatic manoeuvring, brought to the attention of the palace a new form of electric lighting in which there were no dynamos, but *generators,* and these innocent machines were installed to the perfect satisfaction of the astute monarch.

The students of Robert College have been visiting us in considerable numbers, the boys acting as guides, flirting with the girls on board and making themselves generally agreeable. As the College is a co-educational institution (400 pupils, mostly residential) I was not surprised to hear the Colonel had been doing the honors for the fair students that came aboard to visit us. He showed me his note-book inscribed with some dozen names in girlish hands—all of whom promised to send him a card at Xmas and all received a hearty invitation to visit him in Chicago. The Colonel does nothing by halves.

We made a wide sweep at the entrance of the Black Sea, and on our return passed the College grounds that skirt the water's edge of the Bosphorus. On the tops of buildings, in the grounds, on the neighboring walls the boy and girls were grouped, waving handkerchiefs, sheets and towels and singing American songs of all kinds, while from the highest tower floated the stars and stripes. It was a pleasant sight to most of us.

The sun was setting behind the hills of Stamboul as we headed towards the Sea of Marmora and realized the wonderful outline of the city. Perhaps the most prominent object was the six-minaret mosque of Achmed First, standing out in its delicate beauty against the orange sky. Towards Pera the white houses of the embassies and the palaces of the rich were next lighted up in all shades of yellow, orange and red until, as the *Arabic* passed Seraglio Point and entered Marmora, a faint, pink light tinged every mosque, minaret and tower and made one forget the rags, the filth and the misery of the poor quarters below.

Farther down the coast, after we passed the Dardanelles, we had good views of Lemnos, Mytilene, Rhodes and many another island that stirred strange memories in most of us. The real estate man from Cincinnati allows nothing to escape, nor does he permit his wife and daughter to go uninformed. He brings them tit-bits of information much as the mother-bird dispenses dainty worms and flies to her growing family. I overheard him tell them to-day about a group of young men who borrowed his overworked field glass for the purpose of examining a distant part of the coast where was, once upon a time, he said, a "place called Troy." O! towers of Ilion, O! pater Aeneas, O! mount Ida—"a place called Troy."

The General says he found him early the next morning straining his eyes to discover on a large island near by some traces of the "Colosseum" of Rhodes. He was much comforted to learn that this wonder of the world had been removed several years before.

Smyrna looks exactly as we expected it would, and that is saying much, because the mental photo we had preserved of the Eastern cities we

visited some ten years ago has not always been an exact duplicate of the reality. We kodacked the camel trains in the streets, wandered about the bazars and wondered how much duty we would have to pay on the wonderful rugs we saw. For the sake of old times we took a meal in the hotel we stopped at when we were here before and R. mailed some forty postal cards and letters his wife had written the day and evening before. That there might be no ill-feeling among the nations we posted, as directed, a letter and eight cards in each of the five European post-offices that are to be found in the city. Mrs. H.'s method of buying Turkish stamps is well worth mentioning. Having engaged the full attention of the official in charge (and that may occupy several minutes if he hasn't finished his cigarette) she exhibits a letter with a stamp (generally an American stamp) on it, meantime expressing in the purest English her wish to purchase Turkish stamps not only for the postal cards but for the letter—also shown. The clerk, having just listened to several voluble American women (who have told him all about it) counts out the stamps and waits for the money. "How much do you say these are?" The official, not having said anything for obvious reasons, shrugs his shoulders and puts the stamps back into the drawer. Mrs. H. knowing the Government to be "hopelessly corrupt," tries to buy them with such local money as she thinks they ought to be satisfied with, to the weary confusion of the fez-wearing official. Finally she decides that the "mean thing would only read and not send the cards and letter anyway," so she patronizes the British office where they are more attentive.

The proceedings of our Traveler's Club form almost entirely an "experience" meeting except when the Chairman or some fervent speaker plays a confidence game on the defenceless passengers and delivers a lecture on some historical, ethnological or sociological aspect of the country, generally cribbed from Murray, Baedecker, Lorenz or some other guide book he has meantime "read up." These meetings are amusing and often very instructive. We find that the towns and the objects they contain vary much in their attractive powers as regards individuals, but the most trivial incidents may prove the most interesting. During a preliminary discussion of Smyrna (informally convened in the aft smoking-room) one of the smokers, to an unanimous request that he tell us what interested him most in Smyrna, after some deliberation decided that although the Caravan road with its tinkling camel-train and the picturesquely garbed drivers were strangely queer they still had, in his judgment, to yield the palm to a copper stove-pipe he had found doing business in a back street of the city of figs. Camels he

had ridden—he would never do it willingly again—at the World's Fair and even as a boy he had been acquainted with them in Barnum's Circus, but a good-sized American stove pipe, made of copper, was unique in the experience of a long life. There were no remarks.

Smyrna is the point of departure for Ephesus—two or three hours distant by train—and our party returned with larger or smaller fragments of Diana's temple, which they will, without doubt, stow away for distribution among their friends and Sunday-school pupils.

With the appearance of mighty Mount Hermon, over 10,000 feet high, and at this season of the year deeply covered with snow, Biblical talk began and the members of the Damascus, Damascus-Samaria and the overland Galilee-Jerusalem parties have had protracted meetings in the various saloons. The nice girl at our table hopes there will be moonlight on the Sea of Galilee, because the Rev. Mr. X. (the Episcopal curate with the mild blue eyes and soft voice who is of her party) has promised to take some of them (probably *one* of them) out in a boat and deliver an evening lecture on the biblical references to that celebrated lake.

We passed down the shallow bay that has Acre at one end and, twelve miles farther south, Caifa (or Haifa) at the other. At the latter apology for a port we anchored and disembarked the Palestine "side trip" parties just referred to. E. did not feel well enough to brave the discomforts (and wetting) incident to landing, but the General, who wanted to buy a cane, and I took a boat and were rowed ashore by a lot of yelling, gesticulating, backshish-demanding Syrians. Near the site of the Carmellite Convent, on the hills overlooking the bay, the prophet Elijah is said to have lived and worked. We walked along the single, narrow street and attended market with, apparently, every man, woman and child in Caifa. Donkeys, camels, goats, kids, Arabs, Armenians, Arabicers, Jews and other forms of life pushed and struggled and raised a perfect babel of sound. Suddenly above the din came a hoarse cry; from around a corner rode two Turkish cavalrymen who charged through the crowd, almost running over the General and two heavily laden donkeys. Everybody rushed to what, in happier climes, would have been the sidewalk. From the vantage of a friendly shop door we saw a carriage drive past with an armed soldier on the box and four heavily armed and mounted men surrounding it. It was the Governor of Southern Palestine on an official visit to the town. He need not have been so afraid of us, since two days afterwards, while waiting at Ramleh on our road from Jaffa to Jerusalem, we saw him arrive with only three soldiers, go into the waiting-room and afterwards shake hands (at an

improvised reception) with a train load of Arabicers, every one of whom *might* have asked him how he liked his job, how many wives he had and what his annual salary is.

The Cincinnati man, now that he can bring his biblical lore to bear on us, is full of strange Hebrew saws. He invited E. to make free use of his opera glass and see Mount Carmel "where the ravens fed Lazarus."

The General bought two unbarked canes (one for himself, one for me) made of the wood that grows on the sides of Carmel and *probably* an offshoot of the original tree on which the raven sat while ministering to the hungry prophet. At least that's what the native merchant told us. However, the General spoiled the story for me by pointing out marks on the wood made by the toes of the bird where he alighted on the branch.

We took a sailboat across the mile of water that lay between us and the "Arabic." The Syrian sailors are fine boatmen albeit their sails and rigging are more than primitive. Barefooted, turbaned and wearing the baggy Turkish trowsers, they run about the slippery decks and crawl up the masts like cats. It was quite windy when we reached the ship. Without slacking speed or furling a sail we ran straight at the steel side of the steamer. When it seemed too late to prevent a collision four of them sprang to their twenty-foot oars and tried to "back water." This greatly decreased our speed but did not prevent the sail-boat from running into the *Arabic* with a crash that was heard above the yells of the crew and the roar of the waves. The bowsprit yielded to the strain, was torn from its bed and fell into the water. The impact, however, decreased the shock, and, after a scene of wild confusion, during which some 20 or 30 boatmen in waiting, with a clamor that reminded one of a board-of-trade panic, assisted (?) in the rescue of the floating bowsprit, we found ourselves not one penny the worse.

From the upper deck of the steamer we saw the long, hot, white, sandy seashore stretching towards Acre. In the background were the date palms, the gardens and the hills of Palestine. The shore road is built upon the sand shelf that runs north and south of us. At any minute, almost, trains of from two to six camels pass by, each animal tied to his companions, while in front trot the horses or donkeys of the armed escort. In the distance it looked so oriental, so picturesque; near at hand it was so quaint, so "wobbly" and so dirty.

The General has come in to tell us that none of the sail-boats have a permanent bowsprit; they are simply *tied* in place by tag-ends of rope and their owners *expect* them to be knocked out of place—when convenient. And he led me to the gangway and showed me our crew "repairing" damages. So most of our excitement was not justified.

When we finally left Caifa the Owl Club (in the aft smoke-room) went into executive session over the forthcoming landing at Jaffa or Joppa ("you pays your money and you takes your choice") and the wildest plans were proposed. If the wind were too high and we were unable to anchor in that harborless port, or the sea were too rough to permit passing safely to land through the narrow opening in the rocks could we swim? Several passengers told weird stories of boats obliged to steam up and down the coast for hours, days and even weeks, waiting for calmer weather to land their passengers and cargo. Altogether E. and I went to our stateroom rather disturbed by the news. In the morning we found ourselves quietly anchored off Jaffa, having arrived in the night. The wind was "fresh" and off shore, and when the dreaded disembarkation began it was amusing to watch the boatman bodily remove each waiting passenger, male or female, and literally hand him or her over to another until from the gangway he finally reached the bottom of the boat. Fat women and obese men were handled with wonderful facility. Mostly, the Arab put his arm around the waist of the passenger and swung him forward. It was great fun—watching the others.

Since there are no streets (for carriages) in Jaffa we were obliged to take a good long walk towards the Jerusalem railway station, our baggage having been sent ahead. And it was a walk. Jostled by every sort of oriental and rubbing against every form of beast of burden from a Turkish carrier to a camel, the way led through the most curious water-side town we had yet encountered. E. discovered that there are no delivery wagons in Jaffa, and certainly we saw porters laden with every burden imaginable. The General counted 18 eight-foot, two-inch planks on the back of one wretch while a number of mason's assistants were employed in transporting, in the same fashion, large blocks of stone! Packing cases, huge trunks, bags of hydraulic cement, even a large sideboard and other household furniture, were transported by men and women quite as often as by the lower animals.

We were glad to reach the pure country air and to see the extensive olive and orange groves of the Vale of Sharon. We bought the most delicious, ripe, fresh oranges, for which Jaffa is celebrated, for a shilling a basket—including the very pretty basket.

It is the early Palestine Spring and ploughing (with the ancient plow used here for thousands of years) is going on. For this purpose oxen are mostly used but in a few instances we saw a camel and an ox hitched together. The leafless almond trees—the earliest of the year—were in

full bloom and the ground was covered with all sorts of wild flowers. The pretty (and dirty) little Arab children sold scarlet and orange-colored roses of Sharon (a sort of anemone) and, incidentally, collected the eternal backshish. The General had a pocket full of copper coins with which he made an intimate study of these sturdy infants and their (occasionally clean) mothers. At the station where the Turkish Pasha held the reception he, in the excitement of the moment, put his hand into the wrong pocket and presented one dirty little tot with a two-shilling piece instead of an English penny. At which Mrs. General invited him to retire to his seat in the railway carriage. Thus are our most benevolent efforts rewarded!

We had to review our preconceived notions of the road to Jerusalem. To understand the situation one must remember that the Holy City is built on a mountain peak nearly 3,000 feet above the level of the Mediterranean and that as soon as we leave Jaffa we begin to ascend through defiles in a mountain chain of Alpine character until, after many windings, we reach a town with a winter climate, where snow is frequently seen and freezing weather is not unknown. No wonder the Crusaders had a hard time of it! It is by rail about 54 miles to Jerusalem, but the bankrupt railway with its little Turkish engine and its small, shaky carriages, takes over five hours to make the journey. I always thought Jerusalem was built more or less on a plain and that it was many miles around the city walls. As a matter of fact, it is only a mile across the town and one can easily walk about it in an hour. Even at this season of the year (March) it is uncomfortably hot in the sun but cold enough for a light overcoat in the shade. Our faces were burned a fine Indian red from the Syrian sun, and many an Arabicer is suffering from a severe cold because he neglected ordinary precautions during these sudden transitions from the middle of July to the middle of November.

At Jerusalem we took carriages from the station, which is about three-quarters of a mile outside the walls, and drove to our various hotels, most of them clustered about the Jaffa gate.

I shall not attempt to describe Jerusalem except to say that when one has formed a certain notion of it from the guidebooks he can be sure that they will turn out to be radically incorrect. It is necessary to visit the Holy City and study it for a time to realize what a fearful jumble of "good, bad and indifferent" it is. Regarding one aspect of the city I suppose that in no other area of similar size has ever been gathered such an aggregation of fakes, frauds, filth and misery as may be daily encountered in this town. It appears as if the scum of the nations had been segretated within its four walls, and appropriately presiding over

all is a cunning despot whose care it is to stifle all efforts at improvement and even to frown upon every attempt to alleviate the sufferings of the wretched people who crawl and squirm about the sanctuary. There *may* be a holy place or relic in Jersalem, that is what the Greek or the Armenian or the Coptic or the Roman Catholic or the Latin Church asserts it to be, but I was not fortunate enough to find it. The Church of the Holy Sepulchre, probably the most venerated of all the ecclesiastical structures in the whole world (from which every Easter miraculous, holy fire bursts), contains within a few square yards, the site of Calvary, the grave of Adam, the tomb of Christ, the "centre of the earth" (whatever that may mean), and a dozen other revered objects. Over all preside the priests of the sects I have just mentioned, who wrangle and fight above the alleged grave of the gentle Prince of Peace. These fanatics are prevented from flying at one another's throats only by a Turkish guard who generally have their hands full to prevent a breach of the peace that may embroil (indeed, has often embroiled) half a dozen European governments in their unseemly quarrels.

It is no better in the *soi disant* Church of the Nativity in Bethlehem, where the bejeweled manger and other mementoes of the Birth are displayed for the benefit of Mother Church and the satisfaction of the credulous. *There* the fights have been serious. During one of these priestly riots several soldiers of the church militant were killed and a Turkish officer, in trying to restore peace, was so badly injured that he lost an eye. If there were any beauty in these fake objects or localities one might forgive the superstitions that gave them birth, as mere incidents in our rise from barbarism, but, mixed with costly marbles, rare jewels and precious metals one sees paper roses, cheap lamps, and other alleged decorations, all thrown together as on the bargain counter of a department store. As I looked at the Moslem soldiers in these sacred places I wondered what *they* thought about the ethics of that religion which successive generations of Christian invaders have, with fire and sword, attempted in vain to impose upon them? What did the educated officers in charge think about it and about us who, for value received, were shown the holy relics pretty much as country bumpkins explore the interior of a dime museum? Probably five times that day these Turkish soldiers, having, as the Koran directs, "put aside all worldly things," thanked Allah, the Merciful, the Compassionate, that they were Mohammedans, and not Christians.

The information that follows regarding the status of Mohammedan women is from our guide-book and to be passed over if desired, although these things excited our interest after we had been invited to a native wedding.

The family life of the Mohammedan women is restricted to female society. At the age of about ten, the girl begins to veil her face, which indicates that she is of a marriageable age; in fact it often happens that a girl *does* get married so early. When once a girl has begun covering her face with a veil, she is not permitted to unveil before any man, excepting a blood relation. Owing to these restrictions being enforced so early in life, Moslem women do not feel the want of liberty, and are generally content with their lot.

It is usually the female relatives who suggest to the boy or man that it is time to take to himself a wife, that he may have children and thus perpetuate his name. The women visit the home of any girl they may have heard about from the neighbors as likely to make a good wife. They observe her and her surroundings closely, and after the usual topics of conversation, leave without broaching the principal object of the visit. Should the relatives of the girl have any suspicion of it, however, they will cause her to appear to the best advantage as regards dress and capabilities. The girl appearing satisfactory, they tell the nearest male relatives of the bridegroom-to-be, the result of their visit. If the scheme is approved by him, he consults the nearest male relative of the girl in question, and formally demands her hand. Consent being gives, he replies that he considers it a great honour to be related to the family by marriage. The girl is then asked her wish, as the law permits her to accept or refuse; but as a rule she leaves it to her relatives to decide; also the amount the bridegroom shall give as dowry to enable the girl to purchase her trousseau and household furniture. For a family in easy circumstances the sum is from $600 to $800, the greater part of which must be paid to her nearest male relative before the wedding. He, together with the bridegroom's relatives, buy the necessary outfit, each keeping a strict account of every item. The portion of the dowry not paid down (generally about one-fifth) is a debt due the bride, payable at any time after the wedding. This sum is seldom demanded, except in case of divorce, a proviso that makes the husband careful not to resort to divorce whilst in a temper, or for a frivolous cause. After the engagement the girl is considered to be legally married, although she has not yet been seen by the bridegroom, and is still living at her father's house.

Polygamy is not as frequent among the better class of Mohammedan as formerly, since the poor have not the means to indulge in such luxuries. The law stipulates that every wife is to have a separate home and equal attention. A wife or her relatives can enforce this legality. Moreover the bride's relatives can remove her from the

husband's house should she desire it, if he treat her badly or if he show preference for any of his other wives. A woman thus leaving her husband, not being divorced, cannot marry again, neither can she divorce him. He, however, can at any time divorce *her* by saying three times, in the presence of reliable witnesses, "I divorce thee." Should he repeat this formula only twice, he can after some difficulty with her male friends and a few presents to her female relatives take her back again. Should he, however, say this three times and later ask her return (her relatives being willing) she must first be married to another man, and be divorced by him before she returns to her first husband. This procedure is generally only a form. The second marriage is made with a man advanced in years who on seeing her for the first time divorces her forthwith in the manner just described. After all this the husband can take her back without the same ceremony and expenditure displayed in the first instance although it *does* cost him something to pacify her family.

All the furniture, household effects, dress and jewelry, are the personal property of the wife, having been purchased with her dowry-money. In addition to this her family frequently give her much of their own furniture, and when divorced *finally,* she can take all away with her; no one else can claim anything. If necessary she can appeal to her male relatives and the law to uphold this claim. She then returns to her father's house, till she is either married again or dies.

It must not be supposed that there are no bright spots in the sombre picture usually seen by the Jerusalem tourist. I know at least three. One of these is the so-called American Colony, at whose house we, with some twenty other Arabicers, were hospitably received and well entertained. Not only did E. and I have "home" cooking, clean, comfortable beds, a large airy room, well lighted and heated, but we were able to see something of the admirable benevolence of which they form the centre. A band of devoted workers that a quarter of a century ago left Chicago under the leadership of a Mr. and Mrs. Spafford, to do "settlement" work where it was most needed, have so increased in numbers and influence that their fame has spread all over Palestine. Their friends are counted as well from wild tribes of Bedouins (one of their Sheiks was visiting at the house while we were there) as from the other Orientals that make up the mixed population. They now own two or three large houses and have a fair income from a number of industries they have inaugurated. These give employment to several hundred people. Something of what they have accomplished may be imagined from the fact that about ten years ago the Turkish

authorities invited Mrs. Vester (*née* Miss Spafford) to take charge of the public school for Mohammedan girls and to teach them pretty much what she considered most useful. In a short time this struggling school of 30 girls increased to 350 and for several years was a great success. Mrs. Vester now has the proud distinction of being the only woman permitted to enter alone and unattended any of the Moslem holy places about Jerusalem. The Arabicers who were fortunate enough to live at the American Colony were the envy of all their compatriots, for while *they* lived on pumpkin pie, good bread, excellent butter, *real* coffee, doughnuts and other American luxuries and had a special entertainment every night in the large parlor of the principal house, most of the others had to put up with the roast goat, greasy vegetables, insufficient service and (in) "conveniences" of the second-class Palestine caravanseries for which the Holy City is famous. We left *that* oasis with deep regret and a hearty invitation to come again.

Then there are several missions and hospitals that, under various European and American auspices, are doing much to alleviate the sufferings of the poor people of Palestine. A most worthy example of these is the British Ophthalmic Hospital (with 30,000 patients annually) that, with insufficient equipment, does what it can to combat especially that almost universal eye disease—trachoma—the cause of most of the blindness one encounters everywhere here. I gave up an afternoon to a visit to this centre of benefaction and wished I were in a position to endow the institution.

If I have spoken rather sharply about the superstitious displays that force themselves upon one in Jerusalem, I cannot help feeling that the places held sacred by so many millions of people for so many centuries do afford solace and comfort to the countless thousands of pilgrims that have taken the weary journey to Jerusalem. For example, we watched one of a large band of Russians—an ill-fed, hollow-eyed peasant—who had bought a poor little candle from the greasy Greek priest who sold them at a profit of about ten thousand per cent. Instead of pushing his way to the front of the sepulchre, like most of the others, he placed the tallow dip in an obscure corner and, all unmindful of the crowd, humbly offered up his earnest petition. Surely, somewhere in the Beyond notice will be taken of that pathetic soul, thus bared before the infinities and the eternities, and he will find the peace he had come so far to seek.

The valley of Hinnom (or Gehenna) contains most of the water supply of the City—Solomon's Pools—and thereabouts, on Friday is held the cattle market, which we saw. On its deep sides, also, we

witnessed the Greek church carnival, and wondered what fun the people that covered its north bank and the dusty Jaffa road beside it could find in such hilarious excitement as sitting in the hot sun, eating nuts, playing dominoes, drinking resin wine, and, incidentally, getting covered with the limestone dust that abounds in the dry season.

E. says I have quoted the Gehenna proverb so often since our arrival in Jerusalem that she is certain I will carry home a sense of loss if I do not repeat it here for the twentieth time. So, please do not read the following sentence because in "Her Majesty the King" you have read it before. "Blessed is the man in whose tent dwell both his own mother and his wife's mother, for even if he gain not Paradise he will not fear Gehenna!"

After listening to many councillors and obtaining thereby the most varied forms of advice we decided to visit the Dead Sea and Jericho, especially as E., under the influences of Mrs. Spafford and the other members of the Colony, was feeling "in the seventh heaven." We did some mental arithmetic and decided that as Jerusalem is, say 2,600 feet above the level of the Mediterranean and the Jordan Valley about 1,400 below it, we would have to descend in the 35 mile ride, some 4,000 feet. "No, it is not *warm* there," said our dragoman, "it is *hot* there." And it was. He failed, however, to add, "it is dirty and dusty there." Still, we enjoyed every hour of the pilgrimage—even when, on our way back, we had, to relieve the horses, to take an hour's walk before reaching the Mount of Olives, straight up the mountain side.

In a gorge of Alpine dimensions we were shown the Convent of St. George, built half way up a perpendicular cliff. It is accessible only by a narrow winding path mostly cut in the face of the rock. Along this dizzy path are rude dwellings, cut out of the solid rock—mere burrows—in which "holy" hermits exist from year to year, fed upon pilgrim and tourist charity eked out by occasional donations from the Convent. However, I do not blame these ascetics for withdrawing from the life-in-death of Jerusalem and Jericho. Unable to accomplish any good in the world they immure themselves in these dungeon-like resorts and, perhaps, have the satisfaction of believing that, in some way or other, they perform a meritorious work. *Chacun à son goût.*

Sometime in the past single travellers and even caravans were attacked by Bedouins on the war path, so we were accompanied by a good-looking, armed and mounted guard—a sort of municipal soldier of the most picturesque type. He proved an agreeable addition to our party. Halting in a striking attitude (for easy photography) he expressed a willingness to sell his horse, dagger, sword, rifle, bridle, etc., smiling

the while on everybody who spoke to him. His English vocabulary consisted of the numerals, "good-day" and good-bye."

Of course, when the journey ended he received an adequate amount of backshish for his eminent services.

As we approached the tropical valley of the Jordan and had our first glimpse of Jericho and the Dead Sea, we realized as never before, what is meant by the expression "the shadow of a great rock in a weary land;" in the blinding sunlight if we exposed our faces, unused to such treatment, for even a few minutes, it felt as if we were looking into a blast furnace, while in the shade of the mountain it was cool and pleasant. When we started on our journey from Jerusalem a steamer rug and heavy clothing were not disagreeable; at the Dead Sea we longed for a straw hat and tennis flannels.

The five-mile approach to the *Mer Morte* was carried through a scene of desolation resembling the Dakota Bad Lands—no vegetation and no sign of flocks or herds. We stayed long enough to "sample" the waters, a few of us took a bath (and tried in vain to sink beneath the waves) in the bitter-salt-asphalt waters, inspected the boat that plies between two "ports" on its shores, annexed a few pieces of bitumen, a few salt covered stones and a few snap-shots and then turned our horses' heads towards the Jordan.

After a couple of hours driving we reached a very beautiful part of the river bank lined with trees and carpeted with flowers. Jordan overflows its banks when the snows of Mount Hermon melt in July, not to mention the streams that flow from "Nebo's lofty height" and the other peaks of the mountains of Moab that form the eastern boundary of the valley. At that season it is quite a wide river and justifies the line, "On Jordan's stormy banks I stand," but *now* it is little more than a creek—albeit a charming creek, winding, like the Meander, through a most fertile country some 50 odd miles from the sea (?) of Galilee. This, the garden spot of Palestine, is the personal property of the Sultan, who has so far declined all offers—and they have been many — to develop its resources. Some intrepid soul planted cotton near Jericho and found it grows as easily as on the Nile, but the incubus of Moslem rule will likely prevent any good of the venture.

The old lady, whom we call No. 8, is happy. She has reviewed her early studies of the Old Testament and is much pleased with the guide, who has been pointing out the mountain from which Moses saw the promised land, Elijah's fountain, the recent excavations of the ancient walls that fell down at the sound of the priests' trumpets, etc. She confided to E. that she can now easily understand how the children of

Israel crossed the *Dead* Sea—of course, in a shallow part—"because you see, it is narrow—not wide like a real sea." The General succeeded in finding for her the pillar of salt that once was Lot's wife, whereupon she prevailed upon the Captain's wife to kodak it and promise to send her a print.

If there is a worse "hotel" in the world than the one in which we spent that night at Jericho I would give several piastres to hear about it. It was not that this hostelry was dirty, but it exhibited conditions that I am sure are peculiar to Jericho. Our table attendant, for example, combined beneath one filthy turban and the other remnants of an Arabic dress, the functions of waiter and hostler. E. says I am "down on him" because he rested the platter of fish on my head while he helped her at the alleged *table d'hote*; the fact is, I objected to his combining his double duties within the same ten minutes. I saw Abdullah, between the soup and the fish, rush into the stable yard and hastily harness a donkey, carefully cleansing the back of the faithful beast with the towel which later on was utilized for wiping our plates. Abdullah's method of serving our Apollinaris, for we dare not drink local water, is almost unique and afforded him infinite amusement. As the bottles are indifferently cooled the effervescence is quite marked. Opening a bottle in our presence with his small pocket corkscrew is a performance that occupies some time and is watched by the whole party. The cork, in several fragments, is finally extracted when "swish," goes the carbonated fluid. Abdullah first endeavours to prevent the outpour by placing his palm on the opening, and when that fails by inserting a forefinger or a thumb as a sort of human cork. We do not remonstrate with Abdullah because he would not understand our Arabic, and, anyway, if he did he might wipe the bottle with his hostler's towel. Our dietary while we rested in Jericho consisted of such articles of food as do not come in contact with the native population, *e.g.*, boiled eggs, oranges, and bananas. The rest of the pilgrims "turned in" similar reports. Although we slept in our clothes E. enjoyed the pleasures of imagination in that she assured me next morning she had, in her troubled dreams, been bitten by every insect that crawls, creeps, flies or jumps.

The Colonel had a dream in which he saw from a convenient hill-top the "Arabic" in a storm that threatened to send her to the bottom of the Aegean Sea. As he watched she careened in such a fashion that the portholes burst open and whole trunkfuls of silver spoons cascaded forth and sank beneath the waves! The visual shock was so great that he awoke and found his steward trying to tell him that it was seven-thirty and time to dress for breakfast.

We were up, had our morning meal by lamplight and resumed our homeward journey long before sunrise. In this way we were able to get a good start and reach the cool mountain passes before the heat of the day. It was a glorious sight to view, across the Jordan Valley, the tropical sun slowly rise from behind the mountains of Moab.

The pleasure of our visit to the pretty Garden of Gethsemane was not enhanced by a near view of the lepers that are allowed to beg in its neighbourhood. A German society provides a home for about one-half of these unfortunates and the municipality makes some sort of provision for the remainder, but, as might have been expected, does not prevent them from annoying the community during the tourist and pilgrimage season. Even the comfortable quarters of the German hospice are during this time deserted by most of its inmates for the outdoor life and liberty of the beggar's bowl.

The tents of the Sheik that we met at the American Colony are pitched on the east bank of the Jordan, and shelter over 500 armed and mounted Bedouins. He renewed his invitation to visit him and I wish I had time for the excursion, especially as they say he has, on several occasions, exhibited towards Americans the best example of a proverbial hospitality.

Our usual luck brought us safely to the boat from the landing stage at Joppa, and early next morning we were in the harbor of Alexandria. As our Nile excursion is to precede our visit to Cairo we had to be content with driving through that city on our way to the Kaser-el-Nil bridge where we took the boat. The Pyramids of Ghizeh appeared to follow us for miles up the river, and at length faded away.

The Nile is rather low at this season and I understand the " Puritan " is making her last trip until next Fall. For this reason we shall " do " the upper Nile first, and, later, make a special trip to the pyramids and temples about Cairo. We have a stateroom on the upper deck facing the East. We prefer it as it is cool in the morning and does not interfere with our Nile sunrise. And what sunrises! From the early cool of dawn until an hour after the sun comes up the east is one glorious study in blue, orange, red and all combinations of these colours. We also made a deliberate study of the various water-raising devices—as all other Nile tourists have for untold thousands of years—of the endless procession of picturesque sail boats laden with the spoils of field and factory — grain, sugar-cane, water bottles, cut stone, not to mention human freight in the guise of Egyptians, Arabs and Soudanese.

One of the most attractive sights we saw are the fields of opium poppies with their many coloured flowers, most of them for smoking purposes, I fear.

It was not difficult to find evidence on every side of a prosperous land. We missed the down-trodden, hopeless appearance of the populace so marked in Palestine. It seemed as if the fallahin had a chance here (probably for the first time in thousands of years), and we thanked the British government for at least giving us that comfortable assurance. Even backshish was not demanded with that frequency and persistence which we always expected in Turkey; again thanks to the British, who are doing all in their power (by placards posted wherever tourists are found) to discourage this degrading practice.

And so we slowly steamed up the river lotus eating, which is mostly equivalent to lounging on some comfortable part of the boat and watching the ever interesting shore. No one can fail to be impressed by these scenes—the strange objects we were always encountering, a fellah at prayer, a native village, a shaduf at irrigating work, with its labourers drawing water from one level to another, singing the while; the antics of a buffalo calf, a baby camel or a frisky donkey—no wonder E. hoped we could go on for a month or two in just this way.

Last night our boat ran on a sand bar, and in spite of backing up, putting on all steam and the "poling" of the Arab crew, there we stuck for half an hour.

The blindness and eye diseases of the natives pursued us from the Holy Land. The reason for the prevalence of trachoma is not far to seek. At Assiout (where the shawls come from) we drove about the bazaars and town. Every hundred yards or so we noticed children whose faces were covered with flies, no attempt being made to remove them. We are told that the fatalism of their race prevents the Egyptians from disturbing these vile insects, thus allowing them to carry infection from one person to another. If anyone makes a study of the Egyptian fly on his native heath he will find one of the most persistent, most aggressive animals in existence. He simply will not move on but, in spite of "horse-tails," fans and other weapons of offense, sticks to the face and hands with a tenacity worthy of a better cause. When E. first experienced him, she said, "Oh, now its going to rain, the flies stick so." But it hasn't yet.

The main difference between the possibilities of uprooting trachoma in Egypt and the same enterprise in Palestine is that in the former country public sanitation and education now go hand in hand; under Turkish rule the country must still suffer because no "dirt" disease can be eradicated where there are no opportunities or inclination towards general hygiene.

They say that after a week in upper Egypt nobody ever mentions the

weather because it never rains, snows or hails, and the sun always shines. There is no excuse for comment when there is no variation.

Our dragoman, Hosein Mahommed, is a glorious creature who arrays himself in a new gown every day, sometimes silk, sometimes cloth of gold. He daily explains the "ruins," answers a thousand questions, beams on everybody and sells rings, scarabs and mummy beads. At dinner he announces the program for the next day, and then tells a story which always begins: "Once upon a time there was, etc.", and generally drags in the "God of Love." I wish I had time and space to jot down Hosein's stories, because, outside of the Arabian Nights Entertainments, there never was anything like them. Why dragomans are not imported (with all their resplendent clothing) into America for lawn fêtes and dinners I cannot imagine. But then, I presume one would need an Arabian environment to make such an undertaking effective.

The ladies of our party have much trouble with their reckonings in Egyptian piastres and milliemes. From the lounge-steward, who speaks little English and less French, I overheard "No. 8" trying to buy a bottle of mineral water. "I want Hunyaddy, Hunyaddy Janness, a French drink—fizz, fizz, like this," and she suited action to the word. She finally got a bottle of apollinaris, although she said she "took no stock in them Eye-tallian waters."

The son of the Kansas city banker brought a couple of trunks filled with an appropriate outfit for a Nile traveller. When we went out this morning, per donkey, to visit the wonderful temple of Denderah, he appeared with an English riding suit, helmet and whip—the admired of all admirers. He also possesses a shooting outfit and fires unremittingly and, so far, I am happy to say, unsuccessfully, at the vultures, cranes, ibises, hoopoes, pelicans, and fish-hawks that we pass on our way south. I wish somebody would gently lift that youth into the turbid waters of Father Nile.

As our better halves declined the trip to Denderah, the General and I took donkey and set forth with some twenty other pilgrims. His animal, Bulbul, so named from his voice, and my beast, Kalamazoo (all donkeys that carry me are so christened), impelled from behind by two boys, won over the other contestants by forty yards. The General swears if he ever catches his donkey boy when the other passengers cannot see them he will damage the ebony cane he bought at Assiout beyond recognition. He says he didn't mind having Bulbul belaboured as long as they are both on the level desert, but he will not permit any tail-twisting when he and Bulbul are descending canal banks. However, the General

had a good time in the temple, and I saw him later in the day "backshishing" his boy, the boy's reputed father (who said he owned the donkey), his little sister, and a neighbour that kindly held the bridle for him while he dismounted.

The temple of Denderah must have been an imposing building before the early Christians tried—let us be thankful that those efforts partially failed—to chisel and hammer off the faces of "images" with which the walls are covered. In many places one sees the coloured pictures and hieroglyphs that decorate the ceilings and sides of the chambers. The roof is composed of immense blocks of stone, dovetailed so as to resist earthquake and human vermin. Signs of the latter are everywhere to be seen, and we noted among them the names of "R. R. Lindsay" and others deeply cut in the stone. The Senator said that although the *early* Christians had failed to utterly deface the monuments, the Lindsay tribes were continuing the enterprise, and if given time and a free hand would eventually succeed. Some of our party smiled and made jokes about the myth of the illness, death and resurrection of Osiris, the Egyptian saviour, as we find it so marvellously portrayed (over twenty centuries ago) on the walls of this wonderful temple dedicated to Horus, Set and Osiris. I well remember, however, that they treated what was probably a second edition of the same legend in quite a different fashion because it was told in the Holy City. It depends, you know, upon whose ox is gored!

Three chums of the man from Cincinnati got on at Minia. They are now assisting him in "lining up" the monuments. The fat one seems to be chairman of the club, that generally holds sessions in the smoking room after each meal. This afternoon I heard him say, "Well, if I were doing a god business in Egypt, I would take the job of that feller Horrors. The Irishman, O'Cyrus, was hot dog, all right, but Horrors had the call." His description of the pictured wall on the Denderah temple representing the sacrifice of Cleopatra to Ammon-Ra would have delighted the soul of Mark Twain. It is too funny to spoil by attempting to repeat it.

The servants on the boats and in the hotels are mostly Soudanese, they say, and certainly they seem much cleaner, more alert and more intelligent than the Egyptian fellahin. Probably that is the reason the Anglo-Egyptian soldiers are so largely recruited from the Soudan.

We landed early at Luxor, and took up our quarters in the fine Winter Palace Hotel—to which E. says she is coming for a rest every February and March.

It so happens that we have the full moon just now and are taking complete advantage of it. We never expected to see the gigantic columns

of Karnak or Luxor by the pale light of the moon and feel as if we have been particularly fortunate in being here to witness the glories of that view. This morning we rose early, and from our balcony saw the moon set across the hills and the desert, and almost at the same moment, the sun rise across the Arabian mountain tops. We were so much impressed with it all that I was within an ace of missing the trip to the Tombs of the Kings, for which long journey it is well to start before the sun is an hour high, unless one wishes to be burned a deep Egyptian brown that persists for weeks.

In a week or two we shall be on the Mediterranean again, and, although we have before us the South Italian spring and the delights of Amalfi and Sorrento, yet "everybody" has been there, and it seems hardly worth while to write about it—anyway it would not be appropriate to a Levantine Log.

THE DIFFERENTIAL DIAGNOSIS OF SOME FORMS OF MENTAL DISEASE, WITH A NOTE AS TO TREATMENT.

BY

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In the preparation of this paper I had one primary object in mind, which was to present in a concise and concrete form a brief summary of some of the clinical types of mental disease recognized by the present day of psychiatry. To even deal with all varieties from the point of view of differential diagnosis is no small undertaking in a paper of moderate length, so it will be necessary to confine the subject strictly to symptomatology, which will of necessity be gone into in the differential diagnosis. Since I have been asked to prepare a paper that the general practitioner would be interested in, I have thought it well to suggest certain therapeutic measures that may be of value in dealing with these cases. It will be out of the question to touch on every clinical condition that various authors describe, and it will greatly simplify matters if we have only a few groups and remember that many cases, possibly one-third, cannot at the present time be categorically dealt with. So we must remember that a certain number which present obvious symptoms suggesting that they belong to a given group, may also show other symptoms which would tend to modify our conception, therefore we can only suspend judgment until we know more of the individual's life-history and have a better opportunity of analysing the

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present reaction. Let us just for a moment consider certain fundamentals in clinical psychiatry. In the branch of general medicine with which we are dealing, the reaction of the organism, not from the physical side alone, but chiefly from the psychic point of view, interests us. We are all aware that we react, under normal conditions, after a given fashion, to the influences acting upon us in our environment. When we react in a fashion that makes it possible for us to fit in comfortably in our surroundings, evidence the least amount of friction and generally subscribe to the given fashions of the day, we are adjudged normal. In other words, we are capable of adjusting ourselves to varying circumstances, to earn an independent livelihood, and not to come into violent conflict with ourselves or other individuals in our environment. In the event of some modifying influence becoming active, and so changing our reaction that we lose this perspective, display gross errors of judgment, or indicate in some other way that our psychic functions are impaired or modified, we are said to be insane. I do not, as a rule, attach much value to definitions of insanity, but there is one which seems to me the best that has yet been enunciated: it isn't especially new, but it is more or less concise and somewhat comprehensive: it is this: "Insanity is a disorder of the mind due to a disease of the brain manifesting itself by a more or less prolonged departure from the individual's usual manner of thinking, feeling and acting, and resulting in a lessened capacity for adaptation to the environment." The definition appears in White's "Outlines of Psychiatry," and while it is probably true that no definition of insanity is entirely satisfactory, this one approaches more nearly what we exactly mean than any other. Many men ask what is insanity, is it a disease, a group of diseases, a condition, or is it something of which we know little or nothing in a tangible way, but are ever ready to define? From the above definition we are led to see that it is firstly a disorder of a fairly definite character, and as we have learned above, this disorder manifests itself primarily in the individual when there is a definite deviation from his standard norm. This norm we need to know before we can in any way appreciate the nature of the patient's mental trouble, or as we have described it, his abnormal reaction to the influences under which he comes, in his daily life. The utter impossibility, at present, of adopting a classification that would be entirely satisfactory is self-evident because the differences in the normal mental make-up of every individual would imply that this same individual with special traits of character would be bound to show a reaction which would be more or less characteristic of himself only. This is appreciated by those working in psychiatry,

but it is necessary for practical purposes to adopt a classification which will meet certain requirements and serve to aid in the crystallization of our conceptions of diseased mental states at a given time. Kraepelin's classification or modifications of it are just now most popular, although the followers of the Wernicke school are an important element, and even the old symptomatic school still has a few adherents; the majority, however, who formerly were led by the chiefs of this school are now found in the camp of clinical psychiatry. Clinical psychiatry deals with a longitudinal section, a view of the entire life history of the individual to date. The method previously followed led to an examination of the individual as seen at the time of his illness, but a large share of regard was always reserved for the old, favourite pastime of classifying the case.

If I might be permitted to dwell for a moment on a discussion of certain words in the current phraseology, it seems probable that we will be more likely to clearly understand one another. The word psychosis is used at the present time in place of the phrase: "Some form of mental disease," to designate a clinical type or a definite symptom-complex. All psychoses, from the clinical view point, may be roughly subdivided into: (*a*) The symptomatic-prognostic group, including dementia præcox, maniaco-depressive insanity, paranoia, involutional depressions and allied types of each of these; (*b*) intoxication psychoses, including the various forms of alcoholic conditions and drug psychoses; (*c*) the infective-exhaustive and allied types; (*d*) psychoses having an exact etiologic basis, these including senile psychosis, arterio-sclerotic psychosis, post-apoplectic psychosis, and paresis; (*e*) psychoses associated with nervous disease and constitutional defect, and here we would include psychopathia conjugalis and imbecility. There will be a residue more or less large, even after cases have been assigned to all these groups and the size of the residue may vary from three to thirty-three per cent. of all admissions. Thirty-three would be unusually high, and if we follow Meyer and speak of allied types, three per cent. would probably include all the unclassified cases. On an analysis of the admissions to the Toronto Hospital for Insane last year we find in a total of 262 new cases admitted, that 153 belonged to the symptomatic-prognostic group, 78 cases were of dementia præcox, and 50 cases of maniaco-depressive psychosis. There were 19 cases of alcoholic psychosis, 2 of other drug intoxications, 12 of the infective-exhaustive group, 48 cases where there was a definite pathological basis, and 15 belonging to group (*e*); 8 patients could not be classified. The admission service at the Toronto Hospital for the Insane is more active than any other institution of a similar

character in Canada, but the types are fairly uniform, and it will serve to exemplify in a general way the varieties of cases with which we have to deal, and the types of cases that you as general practitioners may be called upon to treat at any time. First, let us consider briefly the condition dementia præcox, pointing out some of its essential characteristics and the conditions with which it is likely to be confused, concluding with a word as to what can be done in the way of treatment. Dementia præcox is a psychosis of puberty and early adolescence: its victims are, as the French say, "stranded on the rock of puberty," but many cases do not show marked symptoms of their disease until later on in life, and their friends resent very much the close scrutiny which often leads to facts clearly indicating early development of the malady. Three varieties are understood clinically: the Hebephrenic, the Katatonic, and the Paranoid, and there are also certain mixed conditions. The symptoms of hebephrenia show themselves, to a pronounced degree, usually when the patient is eighteen, or even younger. And the symptom which is often most striking and the one which is a fundamental symptom in all forms of dementia præcox is a lack of interest and a weakness of voluntary attention: ranking in importance with this is the emotional indifference and apathy. Owing to the great importance of these elements in the future mental development, deterioration shows itself early and to quite a profound degree; the patient is careless and untidy about his personal appearance, indifferent as to his own interests and those of his friends, and because of the weakness of his voluntary attention may show some memory defect: recent mental experiences not having impressed themselves on consciousness with any degree of vividness are recalled only with difficulty. There is no clouding of consciousness, the patient is quite clear as to time, place and person. There is usually a pronounced falling off in the quantity and quality of the work done. He frequently develops hallucinations of hearing, and perhaps of taste or vision; on the basis of his hallucinations he may elaborate a delusional fabric, the content of which is often vague and fleeting, and the form more or less grotesque. The apathy and indifference persist until emotional dementia eventually results. The outlook is very unfavourable for the complete restoration although symptomatic treatment, and later on re-education, may fit a very small percentage to again take up some work. This is usually to be done only when the patient is under direct supervision for a time, and with many, always. The shallow character of the spontaneous thought production and the childish egocentric nature usually strike one, even where so-called recovery has taken place. It will be seen then

that hebephrenia is a simple dementing type of mental disease. Katatonia shows the fundamental features of hebephrenia, that is, a lack of interest and emotional deterioration, but in addition shows the condition which gives to it its name, namely, muscular hypertension, and it is further characterized by the appearance of four more or less clearly defined stages, that of katatonic excitement, katatonic depression, stupor or pseudo-stupor, and finally, the terminal stage of dementia. These stages do not always appear in this definite order, and the states of excitement and depression may appear alternately for some time before the stage of pronounced deterioration. With the symptom of muscular rigidity certain other signs are also present: first, negativism, which is a blind resistance and opposition to every stumulus. Any wish to get the patient to do anything brings about a response diametrically opposed to the desired act. This is evidenced by mutism, refusal of food, etc. A symptom quite opposite in character often present during the course of the disease process is suggestibility or command-automatism; as White says patients in this condition do mechanically just what they are told, the reaction is entirely automatic, reason and judgment play no part in the choice of the given reaction. With suggestibility another condition exists which is quite unlike muscular tension: it is waxy flexibility when one can mould the limbs, placing them in any uncomfortable position where they will remain for long periods; this condition is also described as catalepsy. Patients when suggestible show a tendency to repeat words or phrases heard, which is called echolalia, the imitations of actions echopraxia. Verbigeration, the senseless repetition of a given phrase is also a symptom. Impulsive outbreaks of extreme violence are not infrequent and mannerisms are seen. In the stage of stupor or pseudo-stupor the patients are likely to be negativistic and quite inaccessible, later on they may again show excitement or pronounced deterioration. A certain number of these cases improve and are able to again take up work. The treatment is similar to that of hebephrenia but the symptom of excitement may be dealt with by giving warm baths. The other variety of dementia præcox, the paranoid, is characterized by delusions of persecution, more or less fantastic and bizarre in character, loosely organized and poorly systematized coming on in the early part of the third decade and showing the fundamental lack of interest with apathy and indifference. The outlook is absolutely bad regarding recovery, but many of these patients can be taught to do useful work in the institutions but the stress of living on the outside is almost invariably too great for them. Dementia præcox often initially suggests the depressive phase of the maniaco-depressive

psychosis, but the depression is shallow and more fleeting. The hallucinatory experiences are more vivid and more persistent and the early and steadily progressing signs of deterioration more evident in dementia præcox. Some cases are extremely difficult to diagnose and at times it seems almost impossible. It is important however that all the symptoms be carefully considered and every phase gone over, because in dealing with dementia præcox you have to do with a condition where the prognosis is usually poor, whereas in the other form of alienation the probability is that your patient will at least recover from his present attack. I have dwelt at length upon this psychosis because as I pointed out it is relatively very frequent—78 cases in 262 admissions emphasizes this. Just before leaving dementia præcox, I have spoken of the katatonic variety. Now katatonia may occur in certain other conditions, and it is sufficient here to say that in some of the psycho-neuroses it is not uncommon, particularly in hysteria. Do not be misled by this, and where there is any question look for other stigmata, mental and physical, of hysteria. There are conditions with which dementia præcox might be confused. Early atypical cases of paresis might offer some difficulties, but keeping in mind the physical signs and the value of early lumbar puncture the solution of the difficulty should be easy. Sexual neurasthenia in young adults occasionally misleads one and it is most apt to be confused with the hebephrenic variety of dementia præcox. Do not be misled by the apparent indifference of this sexual neurasthenic: it is only surface deep just as the apparent interest of the true hebephrenic is of like depth. View the life history of the individual to date, give the matter serious consideration, and although you may have to suspend judgment, it is wiser to do so than make a grave error. One point in the differential diagnosis of dementia præcox which I have purposely refrained from going into until now is the vaso-motor condition. In practically all the forms at one stage or another, there is most pronounced vaso-motor disturbance, the hands are cold, clammy and cyanotic, the dermatographia often diffuse, intense and persistent. Keep this in mind in your examination of young individuals in whom you suspect there is a psychosis developing. As to treatment the great point for the general practitioner to keep in mind is prophylaxis. The young child who is unusual should be carefully guarded and protected from itself and often from over-anxious friends who would gladly see the child at the head of its class even at the expense of health. The rock of puberty and trying period of adolescence are ahead—"mens sana in corpore sano" must be the watchword. You may not stave off the condition more than once in forty or fifty times, but it is worth all your work and every effort if you only

did it once in a lifetime. A visit to a chronic lunatic asylum, where terminal phases of dementia præcox may be seen, will convince you of this. These cases cannot as a rule be treated by the outside practitioner, they usually require to be committed early. Until that time they may need sedatives. Avail yourself of any hydrotherapeutic measure before you resort to drugs, and the gratitude of the physician who has to take charge of the case on admission to the asylum will satisfy you that your treatment has been along right lines. I have dwelt at very considerable length on dementia præcox for several reasons—firstly, because of the frequency of its occurrence; secondly, because of the importance of early care and watchfulness on the part of the general practitioner in preventing the development of many cases, and lastly, because it is a grave sociological and economic problem and deserves our earnest attention.

I want now to deal somewhat more briefly with the next important clinical type in the symptomatic-prognostic group, that is the maniaco-depressive psychosis. This very comprehensive and much embracing group takes in the cases of pure depression, many of which in the old days were classed as melancholia; secondly the cases of excitement of various grades, formerly called mania, the alternating cases and the mixed types. It may seem to you a useless refinement to take cases of mania and melancholia, group them together, speak of them as the mania-melancholia group, and then say we have now a new psychiatric plan and call it the clinical method. Fortunately for us this is not what we have done. Kræpelin, one of the master-minds, by careful clinical studies and a consideration of the life histories of many of these individuals came to the conclusion as other earlier observers had done that there was an underlying fundamental psychological relationship between excitement and depression, that the symptoms in the one were often seen in the other, and that excitement and depression frequently followed closely on one another and were intimately associated. But more important than all else the broad, comprehensive survey of the life history of the patient in contrast to the narrow, cramped and constricted view of the symptomatic school of observers led to the elimination of many cases that did not rightfully belong either to mania or melancholia. Merely because a man showed motor restlessness or conspicuous elation for short periods, it led to his being classified as a case of mania, and naturally caused all sorts and conditions of patients to be included in the mania group. Cases of paresis, exhaustive conditions, precocious dements were all piled in together and labelled acute mania. Comparative order has come out of chaos, and though the group is still very far from perfect we do know type cases when we see them, and are able in

many instances to make a correct differential diagnosis and give a prognosis that will have some value to say nothing of the gain from the point of view of treatment. The conception of maniaco-depressive insanity is briefly this: a patient who develops an attack of excitement or depression, or both, providing that in these attacks the patient exhibits the characteristic triad of—(1) elation, (2) flight of ideas, (3) psycho-motor excitement, if he belongs to the maniacal phase, or (1) depression, (2) slowing of the stream of thought, (3) psycho-motor retardation if he is in the depressed phase, belongs to this clinical group and is not in the excitement or depression of paresis, of dementia præcox, of paranoia, of alcoholism, of senility or of any other clinical entity. A patient may have only one attack of excitement or depression in a lifetime, or may have alternating attacks of depression and excitement throughout a long life, or may have only pronounced attacks of one phase with but slight evidences of the other phases. I have mentioned the chief diagnostic points in the maniaco-depressive: in addition the patient in the excited phase exhibits distractibility of attention, busy activity, emotional instability of attention, and at times slight disorientation because of the pronounced lesion of attention. In the depressed period the attention is weak and is not dirigible, there is a marked feeling of subjective insufficiency and there is general emotional and physical depression. The patient speaks in a low tone of voice, tears well up into the eyes and the whole picture is one of sadness and despair. The delusional fabric is nearly always of a depressive character and has often to do with some harm that is going to befall the patient. There are one or two features that may assist in the differential diagnosis of the maniaco-depressive psychosis and dementia præcox. Vivid hallucinatory experiences are rare in the maniaco-depressive but very common in dementia præcox. Irrelevancy, emotional indifference and other classical signs of dementia præcox are all absent here. If a a patient shows a tendency to sudden, impulsive outbreaks without cause, does some absurd thing without rhyme or reason, look out for dementia præcox. He may be excited, but he is most likely a case of dementia præcox. I can distinctly recall two cases of just this sort. One was a young man who had stood at the head of his class in a dental college for two years, and was to graduate in a month. He suddenly became sleepless, gave up his work, went to a down-town theatre one evening and later went to a supper at one of the hotels, and as a very prominent and well known actress came into the hotel, he rushed up and tried to embrace her. He was escorted to the door, where he jumped into a hansom and drove madly down street, causing no end of trouble before

being arrested. On admission, the day following, he was excited and elated, but he was also irrelevant and hallucinated: he was a case of dementia præcox, and within a year showed pronounced mental enfeeblement. The symptomatic picture might have been taken for acute mania, and the physician would be greatly discomfited when the patient, instead of recovering, grew progressively worse. The symptom-complex, not the most obvious symptom, must lend colour to the picture. Cases of maniaco-depressive, whether of the excited or depressed phase, have, as a rule, a good prognosis, probably 80 per cent. recovering. The cases of depression, of whatever type, coming on in the involutional period, have a less favourable outlook and the cases last longer. Treatment in the maniaco-depressive condition depends primarily on what state we have to deal with, but first of all in both, the state of nutrition must be carefully watched. After that, proper sedative and eliminative measures. Here again hydrotherapy is a most useful adjunct, in fact, is the sheet anchor in many cases of excitement.

Paranoia, I am merely going to speak of. It is a rather rare condition. Last year, at Toronto Hospital for Insane, there were two cases in two hundred and sixty-two new admissions. The classical picture you are doubtless familiar with. An unusual individual develops systematized delusions of persecution, becomes grandiose and extremely egotistical. The warp and woof of the delusional fabric spreads until it embraces nearly all intellectual activity and entirely dominates the individual's consciousness; judgment is greatly impaired. Deterioration, however, advances slowly, and the paranoiac may never become an inmate of an asylum. It is to be distinguished from the paranoid form of dementia præcox, this is not essential from the point of view of the general practitioner since the prognosis is the same in both, that is poor. The case of true paranoia never recovers and rarely can live outside an institution. These cases are frequently dangerous when at large, and should be committed at an early date. We have now dealt briefly with three-fifths of the admissions to the average asylum.

The alcoholic psychoses are quite numerous, particularly in large centres. There are three or four clinical subdivisions: acute alcoholic delirium I do not propose dealing with. Then we have acute alcoholic hallucinatory psychosis, where the pscycho-sensory disorders persist after the clouding of consciousness has all disappeared. The patient hears voices and may see visions, occasionally also the gustatory and olfactory paths are involved. These patients have usually had an active alcoholic history with, perhaps, an exacerbation prior to the development of the acute symptoms of the psychosis. They are tremulous, have anorexia,

are often greatly worried by their unusual experiences and may show profound physical depression with great liability to the emotional tone. When this condition persists and emotional indifference appears with fewer depressive episodes, the condition has become chronic and the outlook is much worse and treatment often of little value. The acute condition must be treated carefully by building up the patient's general health and promoting active eliminative measures. Most important of all is the diet. Psychotherapy in order to help restore the patient's confidence in himself may help. The history, the hallucinatory experiences, the physical signs and the labile emotions are of chief value in the differential diagnosis. The chronic alcoholic delusional psychosis is characterized by the development of more or less systematized delusions usually founded on hallucinatory experiences and on a well marked pathologic suspiciousness. The condition is common in middle-aged men. Ideas of jealousy are often prominent. The patient's delusional fabric is largely sexual in character, he imagines that his wife has been untrue to him, sometimes that some band of persecutors are going to annoy him. This patient may baffle the physician for a long time, as he is frequently inaccessible. Although very suspicious, he will often not tell of his delusions, even though he may have reacted violently, harming some one near and dear to him. These cases slowly deteriorate; the prognosis is bad and they have to be cared for in asylums. There is one other form of alcoholic psychosis which I wish to discuss when speaking of paresis, since it most commonly is confused with paresis.

The fairly large group of cases which are put under the head of exhaustive-infective conditions are most interesting from the point of view of the general medical man, since, as a rule, they have a fairly good prognosis. These cases may follow any debilitating condition or be brought about by a septic process, or occur during the course of or after an acute infection, such as typhoid fever. Certain symptoms are common to all type cases of this condition. They usually show clouding of consciousness, and in this way suggest an ordinary delirium, but they are more than this. They show also marked discrimination, often as to time, place and person. They may or may not have some fever. They usually exhibit marked motor-restlessness, jump about, often refusing to remain in bed; their answers are frequently irrelevant, and they usually suffer from hallucinations. Not uncommonly they are dull and stupid, but may show marked emotional instability. Gastro-intestinal disturbances are present, and almost invariably there is a great excess of indican in the urine: sometimes these patients have delusions which are more or less fleeting and changing in content from time to time. Distractibility of attention is sometimes a feature of the case.

The patients are much below weight, have anorexia and frequently refuse food. They are obviously very sick and may show grave symptoms of collapse. The picture of this condition is seldom confused with any other condition. Katatonic stupor is usually readily differentiated, and if the confusional condition is engrafted on any other condition the history will show it. The prognosis in these acute confusional conditions and exhaustive-infective states depends entirely on the ability of the individual to withstand an attack of severe illness; if the patient's physical condition is very poor and he has little reserve strength the outlook is usually bad, but if the patient can weather the physical storm he usually recovers his normal mental condition. The cases of insanity developing during and after pregnancy may belong to this group, but occasionally such cases belong to the dementia præcox or maniaco-depressive groups. The treatment of exhaustive-infective cases is largely symptomatic. The patient must be stimulated and nourished, eliminative measures promoted and hot packs are often very useful. The writer has seen cases of this sort in general hospitals, where the pernicious habit of using restraint was in vogue, and with such measures the patients are distinctly worse and may be greatly injured in this way. Give all the nourishment that can be assimilated, use hot packs as sedatives and to facilitate elimination. When the patients recover they should be warned that anything that greatly debilitates them is likely to lead to a nervous break-down, that they should therefore take all precautions to prevent a recurrence of the trouble in the future.

Senile psychoses require very few words; the symptoms of a senile psychosis are first a gradual increasing memory defect and a general childishness. The progress of the disease may be rapid and the judgment of the individual may become so bad that his business affairs are soon hopelessly entangled. This is an important consideration, and the early application for the appointment of a committee should be thought of. Conspicuous ethical and moral lapses in men over sixty years of age, who have previously borne good reputations, would lead one to suspect that senility was approaching and that definite pathological signs were being manifested. These patients require care and restraint, and although, if possible, they should be cared for at home, still it becomes necessary sometimes to have them committed. Many interesting conditions are at the present time being studied in connection with the neurohistology of senile brains, especially in those cases that have shown focal signs.

The arterio-sclerotic cases usually come on during the involutional period, and are characterized by a marked feeling of insufficiency, an

inability to concentrate, and are further characterized by the symptom of fatigueability, that is, the early appearance of fatigue when any work is undertaken. There are often more or less marked emotional disturbances, irritability and feelings of depression predominating. There may be slight memory defect, the patient can no longer continue at his work. The most remarkable feature is the preservation of the patient's insight. He appreciates his condition and bemoans his fate. Epileptiform or apoplectiform attacks are common, and other focal signs may be present, such as hemianopsia. I have seen a number of these cases and they have complained of a curious subjective feeling of numbness along the thumb and index finger, and one patient complained of the same feeling along the upper lip. No objective disturbance of tactile or pain sense could be demonstrated. Such cases progress but slowly, and may never have to become inmates of asylums. Potassium iodide is believed to be of value, nitroglycerin and sodium nitrite are useful also. Patients of this sort do not always show the cardinal symptoms of arterio-sclerosis, namely, high blood pressure, hardened arteries, accentuated aortic second sound and enlargement of the left heart. So it is generally accepted that cerebral arterio-sclerosis may exist without there being many evidences of it elsewhere.

Post-apoplectic conditions, as their name suggests, follow apoplexy, and are evidenced by the ordinary signs of organic brain disease, hemiplegias, etc., with or without aphasia. The psychic symptoms are emotional irritability, memory defect, weakened attention and early deterioration. The outlook is distinctly unfavourable and treatment of little value. All that can be done is to make the patient as comfortable as possible and retard the progress of the mental decay.

Paresis I have left until this late date, because, on a previous occasion, at a meeting of this Association, I went into the question of the differential diagnosis at some length. The point that seemed worth emphasizing at that time was that an early case of paresis was not at all unlikely in many instances to be mistaken for a case of acute maniacal excitement, because in many of its features at this early stage it simulates maniacal excitement, the elation and great psycho-motor restlessness are both present, and at times there is even flight of ideas. Do not be misled by these signs, but go thoroughly into the physical condition, and in every instance where it is possible, do a lumbar puncture. The value of lumbar puncture, particularly if negative on more than one occasion, cannot be over-estimated. The French authorities unite in saying that the cerebro-spinal fluid shows changes which antedate in the time of their appearance the eye symptoms. Another diag-

nostic point in connection with paresis is this: when the cases are seen at an early date by the practitioner, the eye symptoms are not, as a rule, those described in the text book. The Argyll-Robertson pupil is rarely seen early in pure paresis, there will probably be a reaction to both direct and consensual light, but it likely will be a sluggish contraction and a limited excursion. The irregularity in the outline of the pupil may be striking and inequality may also be present. The speech defect, tremors, defect in memory, the feeling of well-being are all too well known to require more than passing consideration. Alcoholic pseudo-paresis is the other alcoholic psychosis which must be differentiated from paresis. Many of the physical signs are the same in the two conditions, but lumbar puncture may be of great assistance. The history of alcoholism and the early disappearance of the speech defect as the psychosis progresses, and the rapid general improvement instead of progressive physical and mental deterioration will aid one in making the diagnosis.

I have to deal with the psychoses associated with nervous diseases and constitutional defect. Epileptic conditions are usually accompanied by certain motor phenomena which are familiar to you all. The interesting condition known as psychic epilepsy, where there is no motor disturbance, but a psychic equivalent, may be less familiar. It should, nevertheless, be kept in mind. Hysterical psychosis can usually be determined by the previous history and by the presence of mental or physical stigmata. Neurasthenia is rightly a psycho-neurosis, not a pure psychosis, and with the time left at my disposal I cannot touch on it here. Constitutional defect and the other psychopathic conditions given in the form of classification, while they are of very considerable interest, have not the same importance as the other groups which I have dwelt on at length.

THE VALUE OF THE REFLEXES IN DIAGNOSIS.

ADDRESS IN MEDICINE.

BY

J. S. Risien Russell, M.D., Eng.

Mr. President and Gentlemen:—

It has been my good fortune to receive many kindnesses from our profession, and it has been my privilege to address distinguished audiences. Fully as I appreciate the honours I have enjoyed, and grateful as I am of the consideration that has been extended to me in the past, I feel that

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the honour your Council has done me far exceeds anything that I have hitherto experienced.

I can imagine no greater compliment than to be entrusted with the delivery of the Address in Medicine at so important a meeting as the Canadian Medical Association is holding in Ottawa to-day, and I am confident that those who have been good enough to honour me in the past would be the first to admit that the position in which your Council has now placed me is the most honoured I have ever filled.

There are, Sir, some moments that cannot find adequate expression in words. My gratitude is very sincere, but I am too conscious of my inability to find a portal sufficiently wide to convey the full depth of my feelings, to make me risk the attempt that would be sure to end in failure.

No words of mine can ever thank you enough for the great honour which you have done me.

When attempting to decide upon what subject to address you it naturally occurred to me that it must be on something of neurological interest, as it was improbable that any general survey of medicine would be expected from one who had devoted so much time to a special department.

On reviewing the neurological subjects that seemed most suitable, the usual difficulty was experienced in deciding which to select. It was not without many misgivings that the value of the reflexes in diagnosis was finally chosen as likely to be the most profitable, for I am very conscious of the large amount of work of the greatest possible excellence that has been done on this side of the Atlantic. Three considerations mainly encouraged me to adhere to my decision. One was that the same objection could be urged in regard to any subject I might choose. Another was that so much work has been done on the reflexes during recent years, and so much that is contradictory has been written about them, that there is a danger that the profession may become sceptical as to their value. The third consideration that influenced me was that so many new methods of diagnosis are now in vogue that there may be too great a tendency to rely on these to the exclusion of the reflexes, which they should only be allowed to supplement, not supplant.

We cannot too carefully safeguard the reflexes, for we can ill afford to do without them, and what is especially satisfactory to the practitioner is that no laboratory or special apparatus is needed when applying the tests necessary to derive information from them.

When selecting the subject I did not lose sight of the fact that there would be many present at this meeting to whom I could not presume to

offer any remarks that would prove either of interest or profit, but it seemed certain that the bulk of those attending the congress would be men busily engaged in the toils of general practice, with but little leisure for reading. Much as you may be interested in the scientific investigations of the age, and the great discoveries that are constantly being made, you naturally wish to know how far the results obtained by these researches may be utilized by your endeavours to minimize the sum total of human suffering and to promote the general well-being of the community.

I cannot help feeling that those of you who have perused the literature that has grown up around the subject of the reflexes must be inclined to doubt the value which attaches both to the tendon-jerks and the superficial reflexes in diagnosis, for fresh from reading a paper in which the author insists on this or that phenomenon as a sure sign of organic disease, you take up another in which the writer as confidently asserts that certain alterations of the reflexes have not the value that has been ascribed to them, as he has met with the abnormal sign in functional as well as in organic conditions of the nervous system. You accordingly find it difficult to decide which of the conflicting statements to believe, for the opportunities of putting these matters to the test do not occur sufficiently often in your practice to permit of you coming to any satisfactory conclusion from your own observations.

It is, therefore, natural that you should look to those whose work brings them into daily contact with these problems, and who have endless opportunities of testing the conflicting views expressed by different authors, to assist you to decide what is true, and what is not; on what evidence you may place confidence, and what you should mistrust and discard.

It thus seems probable that no better use can be made of an opportunity like the present than to attempt to show that, in spite of much that you may see written to the contrary, the reflexes are of the utmost value in the diagnosis of affections of the nervous system.

Time will not permit me to quote cases in support of what I have to say, but I can assure you that all the facts to which I propose to call your attention are based on practical experience of these matters, and that actual cases which substantiate the statements occur to me as I recount the facts which I deem worthy of your acceptance as likely to prove helpful to you in the problems that confront you from time to time in the routine of your practice.

An attempt will be made to show that the reflexes are of value:

1. In the diagnosis of organic from functional affections of the nervous system.

2. In the diagnosis of one organic disease from another.
3. In localizing the seat of the morbid process.
4. In determining the extent and severity of the mischief.
5. That there are limitations to the value of the reflexes.
6. What part they play in the diagnosis of maladies outside the realms of neurology.

It will, of course, be impossible to deal with all of the reflexes in the time at our disposal, and it will be equally impossible to discuss more than some of the more important aspects of the subjects I have outlined, without pretending that any exhaustive consideration of them in their many bearings is at all possible.

1. Diagnosis of Organic from Functional Affections.

One is inclined to question either the observation or the judgment of the author who, having elicited the extensor type of plantar reflex after an attack of convulsions, nevertheless concludes that the attack has been hysterical and not epileptic.

That true epilepsy may occur in a person otherwise hysterical, and that an epileptic attack may be followed by an hysterical state, are facts too well recognized to call for more than passing notice; but it is difficult to refrain from a desire to have the opportunity of observing the attack from its inception to its conclusion, before accepting the statement that hysteria was alone responsible for the convulsions which permitted the extensor type of plantar reflex to be elicited in the subject of the fit.

Abolition of the knee-jerks, followed by their exaggeration, coupled with ankle clonus, and supported by the extensor type of plantar reflex, form a combination which we have good reason to agree must be aids to the diagnosis of genuine epilepsy, as contrasted with either hysteria or malingering.

It is equally difficult to accept the opinion of the observer who asserts that the paralysis from which the patient suffered was hysterical, and yet the plantar reflex was of the extensor type, especially when he has no better proof to offer than that the patient got quite well, and that this phenomenon, like all the other abnormal signs, disappeared.

The names of such distinguished authorities are associated with statements of this kind, that the only way which seems possible to reconcile their views with one's own experience is to suppose that certain types of disseminate sclerosis, so common with us in England, must be rare in other countries, so that the vagaries of these varieties of the malady so much insisted on by Dr. Thomas Buzzard in his writings on the subject, have not as yet been recognized by observers who are mistak-

ing for hysteria cases that are in reality examples of disseminate sclerosis. That this is so in some instances is evident even from the information given of the clinical history of the patient's illness. The remarkable way in which the clinical picture may clear up in a case of this disease after the most pronounced signs of organic change have been determined, makes it difficult to believe otherwise than that there is a time in the course of the malady when the lesion is of a kind that permits not only of restitution of function, but also of repair of structure, so that the nervous system is not only able to perform its work again in a normal manner, but is also free from any evidence of persisting structural damage.

These considerations open up a most interesting question that I dare not do more than touch on in connection with the diagnosis of neurasthenia. May not a functional condition of the kind occasion nutritional changes in the nervous system sufficiently profound to lead to alterations in the reflexes that are indistinguishable from those produced by organic disease?

Time will not permit me to discuss this matter in the way that its importance demands. Let me but say that from the practical standpoint it matters but little, for the majority of cases of neurasthenia present no such difficulty in diagnosis, and if such a condition of things as has been suggested be possible, there would be every reason to regard with as much concern the nervous system of such a patient as that of one suffering from some known organic disease, for such a condition cannot but be attended by grave consequences if unchecked by treatment.

2. The Diagnosis of One Organic Disease from Another.

Let us take a common example. A patient experiences difficulty in walking, owing to the inco-ordinate condition of his lower limbs. Two of the most common diseases likely to be responsible for this are tabes dorsalis and disseminate sclerosis.

How quickly it can be determined which of these diseases exists! No knee-jerk, no ankle-jerk, and the plantar reflex not altered to the extensor type in tabes make striking contrasts to the exaggeration of the knee-jerk, exaggeration of the ankle-jerk, amounting, it may be, to clonus, and the plantar reflex of the extensor type in disseminate sclerosis.

Even if, in the latter disease, the knee and ankle-jerks fail us by being absent instead of being exaggerated, the plantar reflex is not likely to play us false. And if it does, is there not still the pupil reflex on which we can fall back for assistance? The pupil which fails to re-act to light while it preserves the possibility of re-acting on accommodation, is

a phenomenon sufficiently rare in disseminate sclerosis, and common in tabes, to make it a further point of contrast between these two diseases.

Take another example. The patient has atrophy of the small muscles of the hand. One of the first things we are anxious to know is whether or not the reflexes are altered, for much depends on whether they are, both in regard to diagnosis and prognosis. Exaggerated knee-jerks, ankle-clonus, and the extensor plantar reflex tell their tale, for it is clear from them that the spinal cord is involved by the morbid process that is responsible for the muscular atrophy. Thus, by testing these reflexes, we at once glean information that is of the greatest import. By testing the arm-jerks and the jaw-jerk, the diagnosis may be carried a stage further, for in the presence of an exaggerated jaw-jerk or clonus there is little likelihood that any condition other than amyotrophic lateral sclerosis is to be held accountable for the muscular atrophy. Although the Röntgen rays have done much to facilitate diagnosis under these conditions, it cannot be said that they have in any way robbed the reflexes of the value that attached to them before the rays were put to such use. It may be safely said that the rays have supplemented, not supplanted, the reflexes in this sphere of their usefulness, for while they may reveal an accessory rib, caries or other disease of the cervical vertebræ to account for the muscular atrophy, in the absence of these conditions they cannot tell us whether the atrophy is of central or of peripheral origin, nor can they further give us the good idea the reflexes can as to which of the several affections of the spinal cord is likely to be responsible for the condition.

Two affections that may easily be confounded, and that present considerable difficulty of diagnosis at times, although at other times the clinical pictures are so widely different that there is no possibility of confounding them, are cerebellar tumour and disseminate sclerosis. A proper appreciation of the different behaviour of the reflexes in the two conditions will go far towards clearing up the question that is in doubt; indeed, the diagnosis may largely, if not entirely, depend on what, if any, alterations are determined in the reflexes. While various alterations of the tendon-jerks obtain in tumour of the cerebellum which may accord with what is found in disseminate sclerosis, the superficial reflexes prove of distinct service in differential diagnosis, for the plantar reflex commonly assumes the extensor type at an early stage of disseminate sclerosis, while it only does so as a late event in a case of tumor of the cerebellum, and is then to be ascribed to some complication rather than to the morbid condition of the cerebellum itself.

The reservation that has had to be made in regard to the plantar

reflex does not apply to the other superficial reflexes on which a diagnosis may be based, for, assuming that the local conditions of the abdominal walls be such as to permit the abdominal reflexes to be obtained, their absence may be regarded as of considerable importance in diagnosis, for, while they are unaffected in cases of tumour of the cerebellum, they are absent in a large proportion of cases of disseminate sclerosis. The reflexes may thus serve to determine whether we are in the presence of an affection in which operative intervention may be expected to bring relief, or whether the morbid condition is one in which operation would not only be useless, but actually harmful.

It is impossible to leave this part of our subject without referring to the value that attaches to the extensor plantar reflex in the diagnosis between multiple peripheral neuritis, in which it is absent, and that fatal disease, subacute combined degeneration of the spinal cord, in which it is present, for, while the former condition may be expected to result in recovery under appropriate treatment, the latter runs its course to a fatal termination with unerring certainty in most, if not in all cases.

3. Localizing the Seat of the Morbid Process.

The abolition of the reflexes in affections of the peripheral nerves, the variety of ways in which they may be affected in diseases of the spinal cord, and their unilateral exaggeration, diminution or special modification in affections of the brain, need no more than passing notice. It is impossible, however, to leave this part of our subject without a word of comment in regard to the part the reflexes play in the early diagnosis of morbid conditions of the brain and spinal cord, for it repeatedly happens that some departure of the reflexes from the normal standard is the first indication that we have, not only that organic disease exists, but as to what part of the nervous system is affected. Special note must also be taken of the important *rôle* they play in the localization of focal lesions of the spinal cord, in which connection nothing is more important than the aid to be derived from them in the diagnosis and localization of tumours of the cord.

The abolition of the reflexes which correspond to certain segments of the cord, the escape of all the reflexes above this level, and other exaggeration or other modification below it, must be regarded as the most valuable indications we have in determining the position of a focal lesion.

Similarly, unilateral alteration of the reflexes may be the first indication of which hemisphere of the brain is affected, and, while it may happen that hemiplegia or some other condition makes it superfluous

for us to seek assistance from the reflexes, there are cases in which there is so much uncertainty that every source from which information can be gleaned must be welcomed, and then it is that the reflexes may prove invaluable. No better example of this can be found than what obtains in tumours of the frontal lobes of the brain. The difficulties of localization in such cases may prove well-nigh insurmountable, so that unilateral exaggeration of the knee-jerk or the appearance of ankle clonus on one side is welcomed. Of similar significance is the appearance of the extension of the plantar reflex, or, as my colleague, Dr. Grainger Stewart, has shown, diminution or abolition of the superficial abdominal reflexes on the side opposite to that on which the tumour is situated.

Another class of case in which the reflexes may prove helpful is that in which the question to be decided is whether the disease is in the cerebellum or pons. The determination of this point becomes particularly important when a tumour is responsible for the symptoms, for, while those which occupy the pons are inoperable, no more successful class of intracranial tumour is met with from this standpoint than many of those which involve the cerebellum. They supply us with some of the most brilliant results of modern surgery. While there are many points on which the diagnosis must rest, it is not too much to claim for the reflexes that they play an important part in deciding the question at issue, for the earlier they become affected in the clinical history of the case, the more likely is the tumour to be situated in the pons, while the longer they remain unaltered the greater is the likelihood that the seat is the cerebellum. The knee-jerks cannot be said to be of material assistance in this connection, for, as already noted, they may become altered in uncomplicated cases of tumour of the cerebellum. It is, however, otherwise as regards ankle-clonus, and alterations of the superficial reflexes, for unilateral diminution or abolition of the abdominal reflexes, or alteration of the plantar reflexes to the extensor type, cannot be regarded otherwise than of importance in diagnosis, if they are determined sufficiently early in the clinical course of the patient's illness to make it improbable that they are the outcome of some complication rather than due to the original malady.

4. The Extent and Severity of the Mischief.

It would appear to be self-evident that, inasmuch as the various reflexes have different segments of the spinal cord on whose integrity they depend, the fewer that are lost the less extensive the lesions, and the wider the extent of their affection, the more widespread the dis-

tribution of the morbid process. It must be clearly recognized, however, that this is by no means necessarily the case, for, in reality, this only applies in some instances, for a very limited lesion may give rise to widespread alterations of the reflexes. Take, for example, a case in which the lesion is limited to the cervical region of the cord, and abolishes the scapulo-humeral and other arm reflexes. Many other reflexes will also be altered, though not necessarily abolished, so that among the abnormal phenomena to be looked for are exaggeration of the knee-jerks, ankle clonus, and the extensor type of plantar reflex.

No better example of the value of the reflexes in determining the severity of a lesion can be suggested than is supplied by the knee-jerks in cases of transverse lesions of the spinal cord above the lumbar enlargement, for when, instead of being exaggerated, they are abolished and remain absent, the gravest fears are justified. When the knee-jerks do not return there is every reason to fear a severance of the cord so complete as to preclude the possibility of re-establishment of the paths through the damaged segments of the cord. Ankle clonus, a phenomenon that we view with concern under other conditions, would indicate possibilities of recovery which would not have been justified had the knee and ankle-jerks remained absent.

5. Limitations to the Value of the Reflexes.

There are instances in which the reflexes only partly clear up the diagnosis problem. Take, for example, a case of myelitis with paraplegia as the result. From the reflexes alone the diagnosis may be made as to whether ordinary myelitis or polio-myelitis exists, but further than this they cannot take us. The X-rays may reveal tuberculous disease of the bone, which has not as yet produced spinal deformity, or the opsonic index may raise the suspicion of a tuberculous origin of the paraplegia in a way that is impossible to the reflexes.

Similarly, syphilitic pachymeningitis may not as yet have occasioned any alteration in the reflexes by which an organic condition can be diagnosed, and yet lumbar puncture may permit the determination of a leucocytosis that allows a positive diagnosis to be made. Or the behaviour of the superficial reflexes may justify the diagnosis of an organic hemiplegia, while it requires the ophthalmoscope to say that a tumour is responsible for it, or lumbar puncture to indicate that the thrombosis which underlies it is of syphilitic origin.

Furthermore, it must be remembered that there are some affections of the nervous system in which a diagnosis is to be made without any necessary assistance from the reflexes. Chorea supplies an example, for,

although in this affection the special alteration of the knee-jerks, to which Gordon, of Exeter, called attention, may be present, in which the limb remains suspended in mid-air too long in response to a blow on the patellar tendon, the diagnosis has to be made without any such assistance from the reflexes in the majority of cases. The extensor of the response, and special alteration of the superficial reflexes to which Babinski called attention, are too infrequent to justify any reliance being placed on them.

The fact must not be lost sight of in this connection that the negative may be of little less value than the positive in some cases, and that, accordingly, there are instances when the fact that the reflexes are not affected in a case proves almost as helpful as if they were, for this serves to distinguish the malady from one in which alterations of the reflexes were to be expected.

6. The Part They Play in the Diagnosis of General Diseases.

The question that next arises is as to whether the reflexes give any assistance in diagnosis in realms outside those of neurology. There can be no doubt that there are many cases in which, in the absence of any known disease of the nervous system, the reflexes are altered in the course of some general disease or special affection of some other organ of the body.

It will be remembered that in an affection like diphtheria absent knee-jerks may give the first clue to the nature of a sore throat that ought to have been long since determined by bacteriological examination of secretion from the fauces. Similarly, absence of the knee-jerks may call attention to the possibility of glycosuria, which routine examination of the urine should have forestalled.

Some attempt has been made to derive direct advantage from alterations of the reflexes in favour of one as opposed to another disease in which the nervous system plays no part, except that the toxins of the one malady have a more profound effect on the nerve centres, and occasion alterations of the reflexes in consequence, in a manner that does not obtain in the other disease. Thus, the knee-jerks have been found absent in a large proportion of cases of pneumonia due to the diplococcus or the diphtheria organism, while they are not affected in septic pneumonia and are found exaggerated in tuberculous cases (Stanley Barnes).

The chief value, however, that attaches to these observations in the present state of our knowledge is that they prevent us from concluding that some organic condition, as, for instance, myelitis or meningitis, has of necessity developed because these alterations in the reflexes are de-

termined. Those interested in the welfare of the patient are thus spared the anxiety that would be caused by the opinion that might have been expressed in ignorance of the fact that the alterations noted are compatible with transitory effects due to toxic conditions without any permanent organic change.

In conclusion, Mr. President, ladies and gentlemen, let me thank you most sincerely for the patient hearing you have given me. No one is more conscious of the shortcomings of this address than I am. I wish it had been possible for me to prove more worthy of the trust that has been placed in me, and the honour which that trust implies. I can only take comfort in the fact that I have spared no pains to make the address a success, so that any failure to do so cannot be ascribed to a lack of appreciation of the great responsibility which I have accepted, and of which I have been only too painfully conscious. One other consideration brings me comfort in my ordeal; that is, that I am in the midst of friends who will deal leniently with my shortcomings. In his letter of invitation your worthy secretary, Dr. Hackney, told me that I would meet many friends who would be ready to welcome me to Canada. I have, indeed, met with friends, and have been overwhelmed with kindness. Let me take this opportunity of thanking you all most cordially for the welcome you have so generously extended to me.

ON THE USE OF LENSES SPECIALLY ADAPTED FOR THE ESTIMATION OF BI-FOCAL VISION.*

BY

FRED. J. TOOKE, B.A., M.D.,
Demonstrator of Ophthalmology, McGill University, Montreal.

In describing the features of bi-focal lenses the ophthalmic surgeon has heretofore found that a great deal has of necessity had to be left to the imagination of his patients. The first actual experience of their particular points of vantage, as well as some of the disagreeable features which these lenses may produce, may only be appreciated by the patient after his prescription has been dispensed, and when he is wearing his glasses for the first time.

Patients very frequently, if not almost invariably, complain that they notice a rim before their sight, and that they frequently stumble on going up and down stairs; that when looking down towards their feet they notice that objects rise up close to them. Many frequently experience giddy sensations as a result. These difficulties may be very largely if not altogether avoided if the patient is instructed how to

* Read before the Canadian Medical Association, Ottawa, June 10th, 1908.

use his lenses by the oculist, and taught to avoid looking down through the wafer, except when actual near vision is desired.

To assist in the explanation of a great deal of what bi-focal lenses will and will not do, and to avoid a great deal of misunderstanding to which both patient and consulter have been subjected, I have arranged this simple device. I employ a trial frame with three cells, or one that will accommodate three lenses. When I am refracting a presbyopic patient with compound hypermetropic or myopic astigmatism, or with mixed astigmatism, in the cell nearest the eye I place the sphere and in the middle one the cylinder required, thus registering distance vision. Should the condition be one of simple astigmatism the sphere is, of course, dispensed with, while in ordinary hypermetropia or myopia one naturally does without the cylinder. In order to estimate the presbyopic effect of a bi-focal for reading I insert in the front cell a special lens which Messrs R. N. Taylor & Company, of Montreal, were kind enough to make for me at my suggestion. This lens consists of a plano, to the lower half of which is cemented a wafer corresponding approximately to the presbyopic correction required. In this manner, on looking forward, regular distance vision is unimpaired by the plano, but on looking down through the wafer my patient is able to appreciate his reading correction. I have had these made up in pairs of + 1.00D, 2.00D, and 3.00D, finding that these spheres are sufficient to give both my patient and myself an approximation of the bi-focal effect.

I, of course, estimate the exact presbyopic correction in the usual way before writing my prescription.

I have found these lenses particularly useful in cases where patients fully understand the value of bi-focal glasses, yet when wearing them complain of the change from distance to near work being too sharply defined. Many patients are made quite happy and comfortable by a slight over correction for distance and a correspondingly slight under correction for near work, thus making the difference in the two somewhat less marked. Such a correction and the effect that it would at first produce could only be shown and appreciated by the lenses which I have described above.

E. P. Robinson, New York, after going over the physiological effects of ergot, states his belief that it is of great value in pathological conditions of the blood-vessels and is of special use to the skin specialist. He submits three cases out of several hundred that he has treated by intramuscular injections of ergot, to show its value and method of use. The cases which he has submitted are acne, varicose veins, and sluggish venous circulation.—*Medical Record,* July 11, 1908.

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A Monthly Record of the Progress of Medical and Surgical Science.

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THIS CONCERNS YOU!

On July 17th a man who was dying of consumption lay for three hours on the floor of one of the charitable offices of this city—lay, because he was too weak to sit in a chair, and no place could be found to which to send him! The blame did not lie with the hospitals—they are not permitted to admit these cases, and at that very moment, to our certain knowledge, each of the three large general hospitals was overstepping its rules for charity's sake and was caring for at least one other such case. The two institutions which take such cases were both overcrowded, and could admit no more.

Should anyone care to consult the papers of July 17th he will find that Montreal on that day was boasting a population of 454,000 argued upon a conservative estimate from directory sources, and that some authorities think 120,000,000 bushels of grain may come from our North-west—and we are buying a battlefield, and keeping an $18,000 athletic team at the Olympic Games—and a dying man lies three hours on a floor because there is no place to send him. He is not a criminal, he is just a citizen, dying of the most widespread disease within our borders, and you have, as citizens of Canada, not made provision of one dollar for him and for hundreds like him. The writer knows how splendidly private enterprise and even municipal activity in some places has made provision for the prevention of tuberculosis, but it is nearly

all at the one end of the illness—while the disease may be cured. *Now,* we have to make provision that the advanced case can be separated from his fellows, can be made no longer a centre from which the disease can spread, and can be cared for as a man about to die should be. At our present position in the fight with tuberculosis, we have to recognize that for many years to come, hundreds and thousands of cases are going to die—each one a centre from which the disease spreads, and we have got to separate these people just as we rationally separate a man who has yellow fever.

The time has come that this farce of municipal and private philanthropic care shall be allowed to cease. The time has come that Canada at large should face her duty, and the Federal Government face a problem it has shirked for many years. This question is higher than party—it is not the duty of party—it is a question that is as widespread as the Confederation itself, and it is a measure of enlightenment that any government ought to be proud to recognize and ashamed to leave unrecognized. It is so important, even in dollars and cents, to Canada, that it is worthy of a Cabinet Minister for its work alone. We know that the country can fold its hands and say, "We cannot interfere with the provinces and the municipalities," but the laws which prevent that have to be altered, and why should members not go to Parliament pledged to work to that end? Proper financial aid must be abundant, must be properly apportioned according to population, and must be from the treasury of the country at large. There *is* enough money in the country; there has been for these many years. Canada can afford a million dollars a year to house her advanced tuberculous cases, and if she does, will find that *as an investment,* she is making one of the best and most conservative kind; that annual sum spent to-day *will buy hundreds of useful citizens, who will be inoculated from advanced tuberculous cases of* 1908 *and will die in* 1909 *and* 1910 *and* 1911. Is the country as such paying one dollar to the segregation of its worse-than-lepers? Not one!

Get a commission appointed, if necessary, to sit at once and find out the way it can best be done! Put a lawyer upon the commission who shall be able to unlock the Act of British North America, if that be necessary, and let Canada begin to do something against the most widespread and most mortal enemy she has to fight!

A TEAPOT TEMPEST.

A small but noisy section of the British public has been shocked, and we all know how severe shock, not surgical, but of the moral nature,

can be in Anglo-Saxon individuals. The British Medical Association is erecting a new building on the Strand, and a number of statues have been placed at a height of forty feet from the ground, statues which those competent to judge say are executed in good taste and feeling. Two frequently sane evening papers, supported by Father Bernard Vaughan and some other shriekers, have declared that these statues are indecent, indelicate and what not. The "Lancet" has an editorial upon "The Old Maid with the Spyglass" which is much to the point with regard to such prudery; the British Medical Journal has obtained and publishes a large number of letters upon the subject, written by prominent men, who are indignant at the silly spectacle that has been made of English taste in decorative art by the objectors to these statues. We have not yet seen the comments from Paris, but we feel sure they will be much in evidence, and they will be deserved, thanks to the self-righteous foolishness of the shouters. We are glad to see that the Association has directed the architects to proceed with the work.

Reviews and Notices of Books.

State Board Questions and Answers. By R. Max Goepp, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Philadelphia and London: W. B. Saunders Company, 1908; Canadian Agents: J. A. Carveth & Co., Ltd., Toronto. Cloth, $4.00, net.

The State Board examinations, like those of our Provincial Boards, loom large before the eyes of the student, and this work is for the student who contemplates such an examination. It may help him: Professor Goepp has set down concise answers to the questions, and has done his part; but what is to be said for the student who learns his medicine in this haphazard way; or for the gambler who studies these questions on the chance that the same questions will be asked again?

There is a large amount of information in the book, but it is necessarily in a chaotic state, save that the subjects are roughly divided one from another. "A fool can ask a question," runs the saw, and we fear that Professor Goepp's wisdom has been taxed pretty severely in places. What are the varieties of eczema? is a question; and another is, What metal is liquid at ordinary temperature? which latter seems to be eminently suited to a parlour game. But, apart from a few foolish questions, which are not the author's fault, the seven hundred pages that the book contains, possess much information which can be reached by the assistance of a very excellent index.

Medical News.

The following paragraphs in the *Gazette* of July 28th, 1908, did not inspire the editorial which appears in this number relative to the disposal of cases of advanced tuberculosis, but it speaks forcibly in favour of the need of action:

"Nineteen cases of advanced tuberculosis, for whom there is no accommodation, are now before the Charity Organization Society," said Secretary Lane yesterday in *The Gazette*. "And unless Montreal finds for those homeless people some place where they can be cared for," he continued, "we shall be obliged to allow them to die, like Packwood, in the common jail."

Mr. Lane emphasized Montreal's need for an hospital for tuberculosis cases, and dwelt on the conditions which had led to Packwood's death in the jail on Saturday. The circumstances were of peculiar hardship. Found prostrate in Notre Dame street east, Tuesday afternoon by a pedestrian, he was taken to the Notre Dame Hospital, the authorities of which were compelled to refuse admittance to him, when they found he was in the third degree of tuberculosis. Admission was sought to other institutions, with similar failure. So he died in jail. The inquest was held yesterday before Coroner McMahon.

"Something must be done at once," said Secretary Lane. "For all these nineteen urgent cases there is not a bed available. The hospital authorities are not to blame. Notre Dame de Grace and the Grace Dart Home are doing all they can, and the same may be said of the other institutions. Practically all the hospitals in Montreal to-day have advanced cases of tuberculosis, which should go to a home. With regard to the question of letting homeless cases die in jail, it is not only inhuman, but there is the danger of probable infection to be considered. The whole situation is deplorable, and calls for speedy remedy."

But Montreal's lack of accommodation for such cases does not only apply to penniless people. There is the fact to be considered that even if a tuberculous patient has a little money, boarding house-keepers are naturally averse to have such cases in the house. A prominent local priest, of the Anglican Church, yesterday, related a striking case which came under his notice last winter. A man in an advanced stage of tuberculosis, rooming on Champ de Mars street, was given notice by his landlady. The other boarders had threatened to leave if the patient was not removed. Application for admission to the various hospitals had been made, but in vain. A fellow boarder, who had worked with him

at a freight shed, had said that since there was no other accommodation the patient should share his bed. So for the better part of a week, the freight worker and his dying friend shared the same room and bed. The boarders at length objecting, through fear of infection, the case, the clergyman stated, was brought to the notice of the Montreal General Hospital, the authorities of which, in view of its urgent nature, admitted the patient, who died within forty-eight hours of admission.

"A special hospital is the only remedy for the situation," said the clergyman, who dwelt upon the fact that for tuberculosis patients to be treated at the ordinary hospitals was perilous for nurses and other patients, the latter a likely result, in view of their especially receptive condition. There was also the fact that whereas risks of infection were lessened during the summer months by opened windows and fresh air on the verandas, in winter there was less chance of minimizing risks.

The Philadelphia Academy of Surgery announces that the Samuel D. Gross Prize of Fifteen Hundred Dollars will be awarded upon Essays received in competition until January 1st, 1910.

The conditions annexed by the testator are that the prize "Shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens."

The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 S. 13th Street, Philadelphia," on or before January 1st, 1910.

The twenty-eighth annual convention of the New Brunswick Medical Society was held at St. Stephen. A motion by Drs. T. Walker and A. Murray that a flat rate of $4 be accepted for insurance examinations was lost by a vote of 15 to 4, and a motion then carried to enforce a rate of $5 after October 1st. St. John was chosen as the next place of meeting. The following officers were elected:—J. R. McIntosh, president; C. T. Purdy and A. J. Murray, vice-presidents; G. G. Melvin, treasurer; J. N. Anglin, corresponding secretary; Geo. C. Corbett, recording secretary; Drs. Young, Deinstadt and McNally, trustees; Drs. McInerney, Gaudet, Inches, McLaren and Deacon, members of the Medical Council.

The Johns Hopkins Hospital is the recipient of a gift of the greater part of a million dollars from Mr. Henry Phipps, whose name is so well known in connexion with his efforts against tuberculosis. The object of this donation is to build, equip and maintain for a stated period a physchiatric hospital and clinic for the treatment and study of acute mental diseases. The *Lancet* states that in no small degree the stimulus of this gift has come from Professor William Welch. The donor and the recipient alike are to be congratulated upon so excellent a use of great wealth.

Recent honours of interest to the medical profession are the conferring of Baronetcies upon Dr. T. Lauder Brunton, and Professor W. Watson Cheyne; and of Knighthoods upon Colonel David Bruce, Dr. R. W. Burnet, honorary physician to the Prince of Wales, Mr. Peter O'Connell, of Belfast, and Dr. W. H. Power, of the General Medical Council.

Sir Henry Alfred Pitman, who was at one time Registrar of the Royal College of Physicians, recently celebrated his 100th birthday, and on that occasion, was waited on by a deputation from the College who presented him with a memento of the unusual event.

Retrospect of Current Literature.

OBSTETRICS.

UNDER THE CHARGE OF DRS. CAMERON, EVANS AND LITTLE.

SLEMONS, J. M., and GOLDBOROUGH, F. C. "The Obstetric Significance of the Blood Pressure and its Relation to the Work of the Heart." *Zeit. f. Gyn.*, No. 21, 1908.

Through Erlanger's discovery of a sphygmomanometer, with which it is possible to obtain a record of the systolic or the maximum as well as the diastolic or minimal arterial tension, it is possible to take observations on the blood pressure in obstetric conditions. The difference between the two he designates the pulse pressure. From this latter and from the diastolic pressure the average arterial tension can be calculated according to the method recommended by Dawson. By this means it is possible to get some index of the work of the heart.

The authors' observations were carried out on ten normal pregnant women, five primiparæ and five multiparæ. They were enabled to obtain in all 279 records during pregnancy. The observations were made both

before and after birth, at 11 o'clock in the forenoon, with the patient lying in bed. Attempts were made to obtain records during labour, but restlessness of the patients rendered exact observations extremely difficult.

Pulse frequency.—The average frequency of the pulse was, during pregnancy, 80.5, and during the puerperal period 70.5. In 20 per cent. of their cases the typical slow puerperal pulse was noted, which corresponds to the observations of Hemey and Hiel.

During the puerperal period the pulse frequency in primiparæ and multiparæ were, on the average, the same, but during pregnancy it was much higher in the former.

If the labour has a normal course, the pulse shows little or no variation from the frequency noted in pregnancy, except during uterine contractions. In multiparæ there is a rapid reduction in the frequency of the pulse after delivery, while in primiparæ but a slight reduction follows.

Systolic pressure.—The average systolic pressure the authors found to be 127 mm. Hg. during pregnancy, while Erlanger gives 110 mm. Hg. as the average obtained by means of his experiments in normal non-pregnant individuals between twenty and twenty-five years of age. In not a few of the cases there was a notable reduction in the systolic pressure for about a day before the onset of labour.

A pressure of 180 during pregnancy is not always significant of the existence of toxæmia, as Vaquez, Beau and Fogeler have maintained, and they mention several observations upon a IX-para whose average systolic pressure during pregnancy was 169 mm. Hg.

The authors agree with previous observers in noting an increase of pressure coincident with every uterine contraction, and a somewhat higher pressure between the pains than the average observed during pregnancy. The lowering of the systolic pressure, which is generally noted as occurring at the time of the birth of the child they consider as depending chiefly upon the action of the anæsthetic, as this reduction was not noticed in cases where chloroform was refused.

Diastolic pressure.—Erlanger states that 65 mm. Hg. is the normal diastolic pressure according to his instrument.

The authors' observations show that 74 mm. Hg. during pregnancy, and 72.5 in the puerperal period was the average.

Pulse pressure.—Their observations showed an average pulse pressure for the puerperal period, which seems to be about the normal. There is no marked difference between primiparæ and multiparæ.

Pregnancy is accompanied by a somewhat higher pulse pressure, which is more marked in multiparæ, being 60 as compared with 49 in primiparæ. The pulse pressure is highest during the expulsion of the child,

but is much reduced when chloroform anæsthesia is employed. The pulse pressure is free from variations, both before and after birth, and is more permanent in character than any of the other circulative factors.

Mean pressure.—Dawson has shown this to be in the non-pregnant about 80 mm. Hg. The authors noted no difference between multiparæ and primiparæ in this respect, the average being between 90 and 92.

Heart power (Herzleistung).—It is clear that the pulse pressure which shows the index of the heart power per systole, multiplied by the pulse frequency, gives us an index of the total heart power per minute. If the normal pulse pressure is 45 and the average pulse frequency 72, then the average index of the power of the heart in normal individuals is 3,240.

The average in primiparæ, the authors find to be 3,137, and in multiparæ 2,921.

Work of the heart.—According to Dawson, an index of the work which the heart does can be ascertained through the multiplication of the mean arterial pressure with the work of the heart per minute. The average for a normal adult is 259,000.

The average of this index in the authors' patients was 418,000 during pregnancy, and 267,000 in the puerperal period. Their results show that the hearts of multiparæ, without exception, did less work in the puerperal period than during pregnancy, the average difference being 50 per cent. The difference between these two in primiparæ, on the contrary, is only 10 per cent. The increased work of the heart during pregnancy is probably the result of two factors, a relatively strong systole, and a relatively high pulse frequency. It is possible that the weight of the child has something to do with the difference of the work of the heart in multiparæ between pregnancy and the puerperal period, though the authors have not been able to show any definite relationship in these two factors.

SHAW, W.F. "Chorea During Pregnancy." *Jour. Obstet. & Gyn. of the Brit. Emp.,* Vol. XIII., No. VI.

The author quotes theories advanced during recent years as to the causation of chorea during pregnancy. These theories all gradually lead up to the conclusion that chorea is due entirely to a toxæmia.

A little more than a year ago the author published a series of nine cases on the toxæmic theory, with extremely fortunate results to both mothers and children. He now publishes three further successful cases.

Case I.—Primipara, aged 18. Seven months pregnant. Had been the subject of much mental anxiety through the pregnancy. Vomiting persisted. Had chorea severely when a child. The choreic movements

were general and sufficiently severe to prevent her from drinking out of a cup. The patient was kept in bed, the bowels regulated. A simple saline diaphoretic and diuretic mixture was given and the diet restricted to malted and peptonized milk. Vomiting ceased in four days. Nine days after admission to hospital all choreic movements had ceased. The general condition rapidly improved and she was delivered at term of a living female child.

Case II. Primipara, aged 21. Choreic movements suddenly commenced at the fourth month of pregnancy. No history of previous chorea or rheumatism. Treatment as in the previous case. Patient developed pneumonia ten days after admission, during the course of which a still born fœtus was delivered. There was no further chorea.

Case III.—Primipara, aged 23. Seven months pregnant. Had chorea as a child. Movements so severe as to require two nurses to keep her in bed. Had not slept for three nights before admission to hospital. The treatment at first consisted of milk diet and one grain of calomel every four hours. After two days of this treatment, she was much worse, she had not slept at all, the movements were violent and she had delusions. The bowels were not satisfactorily moved, and a pint of normal saline solution was injected into the bowel every four hours. She was given thyroid extract 5 gr. every four hours, and a diuretic expectorant mixture. After twenty-four hours of this treatment the patient slept naturally for sixteen hours, and on awaking showed marked improvement. For the next twenty-four hours she slept almost constantly. The thyroid and saline were withdrawn after a 48-hour administration. Improvement now rapidly followed and the patient went to term and was delivered of a healthy child. On admission the patient passed 20 ozs. of urine in twenty-four hours, after four days of treatment the daily quantity amounted to 66 ozs., the proportion of urea and uric acid contained being markedly increased.

The author concludes that the chorea of pregnancy is due to a toxin which appears to be identical with, or to closely resemble that of acute rheumatism.

It affects human subjects under two circumstances, both of these being characterized by instability of the nervous system, namely, childhood and pregnancy. An obscure toxæmia of pregnancy gives rise to the instability and irritability above mentioned. The treatment must be eliminative. Pregnancy should not be arrested.

MATHES, F. "Beobachtungen an mit Placentasaft Durchstromten Hundenieren." *Zeits. f. Geb. und Gyn.,* Bd. LXII., Hft. I.

The author has carried out four experiments on the kidneys of dogs, at the same time employing control animals. As a result of his experi-

ments he draws the conclusion that in pressure extracts of the human placenta there exists some material which stimulates the escape of fluid from the walls of the blood vessels of the dogs' kidneys employed. This unknown substance is not influenced by heat; an exposure for three quarters of an hour to a temperature of 64° failed to effect it.

ALBEC, V., and LOHSE, J. E. "Ein Versuch das Eklampsiegift auf Experimentellem Wege Nachzuweisen," *Ibid.*

The authors endeavoured to ascertain if the toxins of eclampsia exist in the liquor amnii. By injecting this fluid into guinea pigs and cats and ascertaining if the specific pathological abnormalities found in the organs of eclamptic women, especially the hepatic changes, could be thus produced. They employed the liquor amnii obtained from five cases of eclampsia, all of which had suffered from one or more convulsions. The urine in all these cases contained a large quantity of albumin. All recovered after delivery.

The liquor amnii was obtained by means of a special instrument passed into the uterus, puncturing the membranes. Intraperitoneal injections were employed of at least 30 c.c.m. Control experiments in which the liquor amnii from normal pregnant women was employed were carried out with exactly the same technique.

The authors conclude that the liquor amnii of eclamptic women contains a definite eclampsia toxin, because when it is injected into guinea pigs changes are induced in the liver which appear to be absolutely similar to those found in the livers of eclamptic women. Such charateristic changes absolutely fail to appear following the injection of liquor amnii from healthy pregnant women.

MAYER, K. "Skopolamin-Morphium Bei Geburten." *Zeit. f. Gyn.*, No. 21, 1908.

The author sketches the history of the employment of scopolamin-morphia in surgery and obstetrics, and then gives a study of fifty cases in which this combination was used in labour, at Stockel's Clinic in Marburg. Following the lead of Gauss, Mayer made use of the preparation only after a certain definite progress in labour had been made. The head must be engaged and the os uteri dilated to the size of a fifty cent piece. It should be used only in those cases having strong, painful uterine contractions occurring at brief intervals. Scopolamin-morphia should not be used in enfeebled persons, where there is any degree of temperature or marked anæmia, nor in cases of placenta previa.

He draws attention to the importance of employing only fresh solutions of the drugs. He employed a 0.03 per cent. sterilized solution of Merck's preparation. To test the condition of the Scopolamin the

author recommended adding one drop of the scopolamin mixture to one drop of 1 per cent. potassium permanganate solution. If a brown colour develops, the solution is bad, but if a red colour persists, it is fit for use.

He employs the solution as follows:—After a definite advance in labour he gives a hypodermic injection of 1-200 gr. of scopolamin and 1-6 gr. morphia. From one-half to one hour later the influence of the drug becomes marked. The woman is quieter, drowsy, and sleeps lightly between the pains, but is easily aroused when spoken to. In many cases the face becomes very red, even sometimes slightly cyanotic, while the patient complains of thirst and dryness in the throat. About one hour after the first injection, a second is given, the same dose being applied unless the effects of the drug are profoundly marked.

To test the patient's mental condition, her attention is called to a thermometer or some little object, and in the course of half an hour it is shown to her again, and she is asked if she remembers having seen it before. If the patient can name what it is but cannot remember having seen it before, she is fairly well under the influence of the drug. In this case one hour later she is given a third injection of scopolamin, about 1-400 gr. At this time the patient knows what the object is, but cannot remember having seen it before, and is conscious of the occurrences in the course of labour, but her memory of them absolutely fails.

The object of the obstetrician is to vary the dose in each case so as to avoid a condition of hypalgesia on the one hand and complete narcosis on the other.

In the fifty cases coming under the author's observation, in but two was there any failure in the regular occurrence of the uterine contractions or in their vigor, and in these cases it was uncertain if the blame could be placed upon the scopolamin-morphia.

The pressure upon the abdominal muscles is reduced as a result of the interference with the reflex. In these cases the patient must be urged to exert the abdominal muscles in the latter part of the second stage. In but one case of the fifty was it necessary to use forceps to effect delivery.

With regard to hæmorrhage in the third stage, in 70 per cent. of the author's cases there was no bleeding, in 24 per cent. there was slight hæmorrhage, and in but 6 per cent. was it severe. In two cases severe vomiting was noticed, otherwise the only unpleasant effect of the injections was the severe thirst. There was no motor unrest noticed in any of these cases.

The influence of the scopolamin-morphia on the child usually manifests itself by reducing the irritability of the breathing centres so that

the child is slow in attempting respiration after birth. This delay on the average being extended for the period of about one minute. This condition of oligopnoea was observed in three cases, two vertex presentations and one breech extraction. In all cases there had been somewhat larger doses than usual employed.

In one case the child was born dead, but the cord was bound tightly around the neck, with two turns, and the autopsy revealed very marked compression of the trachea as the result of enlargement of the thymus gland. No other effect was ever observed on any of the children. Out of the 50 cases, 23 of them, or 46 per cent. showed the complete action of the combination. In 21 cases, or 42 per cent., hypalgesia was manifest only; and in 6 cases, 12 per cent., no influence of the drug was apparent. The highest dose of scopolamin was 1-50 gr. with 1-6 gr. of morphia, which was given in the course of eight hours. The lowest dose was 1-200 gr. of scopolamin with 1-6 gr. of morphia, which was given one hour before delivery took place. The usual dose varied between 1-150 gr. and 1-70 gr. extended over a period of about ten hours. Thirty-one of these cases were primiparæ, and 19 multiparæ.

The author concludes that as a result of the use of scopolamin-morphia the physiological course of birth can be effected by inhibiting the reflex resulting in the usual co-operation of the abdominal muscles. Sometimes an idiosyncrasy against scopolamin occurs. Without the most careful control the condition of the child can be seriously impaired by the employment of scopolamin, especially if large doses are used at short intervals. He also concludes that with care the preparation is most useful in reducing the suffering of labour, but that it should only be employed in institutes where the patients are under constant observation.

OTO-LARYNGOLOGY.

UNDER THE CHARGE OF DRS. BIRKETT AND JAMIESON.

YONGE. "Resection of the Nasal Nerve for Paroxysmal Coryza." *Lancet*, June 13, 1908.

In the *Lancet* of June 13th, 1908, Dr. Eugene S. Yonge, Edinburgh, presents an original article on "The treatment of intractable hay-fever, and paroxysmal coryza by resection of the nasal nerve."

The method is based on the theory that the stimulus which induces the reflex manifestations that are observed in those diseases is conveyed to the centres by the nasal nerve, that is, the nasal branch of the fifth. In support of his theory, Dr. Yonge cites: First, the distribution and

functions of the nerve; secondly, the effects of cauterization of the nasal mucosa, and thirdly, the effects of bilateral resection of the nerve.

The method of resecting the nasal nerve is best described in the operator's own words: "The nerve was reached by an incision at the inner edge of the orbit, commencing just above the inner canthus and extending upwards and slightly outwards for about two-thirds of an inch. The cellular tissue having been cleared from the inner upper wall of the orbit by means of a blunt dissector, and the nerve located at the anterior ethnoidal foramen, the latter was separated from the artery and divided close to the foramen, about a quarter of an inch of the nerve being removed. Horse-hair sutures were inserted, and the wound was dressed with gauze and collodion. The stitches were removed on the fourth day."

The results of what might be called a radical operation were eminently satisfactory, for two months later the patient reported, "an entire absence of the attacks of paroxysmal coryza, and sneezing, and a complete cessation of the asthma..... and increased freedom of nasal respiration."

Several cases of vaso-motor rhinitis that were similarly operated upon gave equally good results. The only after-effects of the operation were diminished sensibility of the septal mucosa, and some increase of myopia, from which the patient had suffered.

Time and further investigation will alone determine the permanence of the results of the operation, and the absence of unfavourable effects. Whilst it is rather premature to draw conclusions from so limited a number of cases, still it can safely be said that the future of the sufferers from this triad of diseases has been made much brighter by Dr. Yonge's valuable observations.

J. T. R.

NEUROLOGY.

UNDER THE CHARGE OF DRS. SHIRRES AND RUSSEL.

C. E. Beevor. "Muscular Co-ordination by the Nervous System." *Jour. A. M. A.*, July 11, 1908.

Beevor analyzes the muscular mechanism of movements, understanding by this term, the single movement of one joint, and not the combination of movements as in walking. He classes the muscles, first, into the prime movers, which come into action in a definite order according to the amount of work to be performed. The will does not appear to have any power to alter this order (except perhaps by trained exercises); second, we have the synergic muscles, which come into play when the

prime movers have an additional action that is not wanted in the particular movement to be executed. For example, the biceps is the chief supinator, but it is also a powerful flexor, and when supination without flexion is done the triceps contracts as a synergic muscle and counteracts the flexion of the elbow by the biceps. The relations between the prime movers and the synergics are very close, and apparently the brain has no power to moderate the impulse sent to the latter to make them act proportionately to the weak prime movers in case of their paresis or paralysis, hence, we have in such cases movements other than those desired. Lastly, we have the fixation muscles fixing the joint when such fixation is made necessary by pressure or displacement. A certain amount of stress on the joint is required to call these into action. The antagonists to the prime mover muscles are relaxed under normal conditions, except in case of some unopposed movements which are required to be suddenly stopped, but in certain cases of functional paralysis this inhibition of the antagonists may fail, and Beevor considers their contraction as a symptom of functional as opposed to organic disease. It also occurs, however, in tetanus and from the toxic action of strychnin, which, according to Sherrington, "change the reciprocal inhibitions, normally assured by the central nervous mechanism, into excitations." Beevor considers all the physiologic evidence to be in favour of the location of the linkage of the ultimate co-ordination of movements being in the spinal cord, and that most probably this nervous mechanism is situated in the cells of the posterior cornua, where, as shown by von Monakow and Schafer, the pyramidal fibers end, instead of the anterior horns, as was formerly supposed. Whether this mechanism is the same as that used for reflex movements, he considers uncertain.

Osterhaus, K. "Nerve Anastomosis in Infantile Paralysis," *Medical Record*, July 11, 1908.

Osterhaus says that a great deal of the deformity which occurs in infantile paralysis could be prevented by early treatment of the acute stages of the disease tending to limit the area involved, and by fixation of the limb in a normal position when the acute symptoms have subsided. Later these deformities require some form of operation to correct them, such as tenotomy, myotomy, tendon and muscle transplantation, astragalectomy, arthrodesis, or osteotomy. All of these procedures are of value in selected cases. The attempt to cause innervation of the paralyzed muscles by connecting them with a healthy nerve is of great value. This operation can do no harm, and in many cases does much good. End-to-end anastomosis of split-off segments of the two nerves promises the best results by means of closer union. Massage and electricity should be used after the operation to aid in regeneration of function of the affected

muscles. The author describes a case operated on in this way, with beneficial results.

GORDON, A. "Drug Insanities." *Jour. A. M. A.*, July 11, 1908.

A study of 171 cases of mental derangement from morphin and cocaine includes 80 cases of acute and 91 of chronic intoxication; 60 of the acute cases were from morphin, and 52 of these patients recovered. In 7 cases there was apparent recovery, but a second attack of coma ensued, terminating fatally. It is probable that a new absorption occurred of poison which had lain for hours inactive somewhere in the digestive tract. Some of the patients had had only one dose, others several. There was no relation between the amount taken and the symptoms. Thirty-five presented notable mental disturbances for weeks, slowness of thought, inability to grasp complicated subjects and striking mental fatigue. All were annoyed by dreams. There were 15 patients with acute cocain intoxication, 9 of whom recovered completely in a short time. Four others had convulsions without a previous history of epilepsy, followed by a comatose condition for from one to three days and insomnia, vertigo, anorexia and delirious attacks for six weeks or more; two died, one in syncope in twenty-four hours, the other in four days from exhaustion following extreme agitation and delirium. In all the cases there was vertigo and ataxia and peculiar visual and tactile hallucinations. Five acute cases were from mixed cocain and morphin poisoning; the prominent symptoms in all five were marked with stupor with paroxysms of delirium and visual hallucinations. The tactile hallucinations were wanting. Mental dulness and apathy continued for two weeks after the acute symptoms in one case, and for seven weeks in four cases. All these patients recovered. Of the chronic cases, 70 patients were morphin or opium habitutes. In 10 of these there were only the general symptoms of mental weakness, failing memory, apathy and profound impairment of the moral sense; in the other 60 there were special mental manifestations characteristic of the different psychoses. Eight were melancholic and suicidal, in nine the condition simulated manic-depressive insanity, 5 had systematized delusions, while in the others dementia was the prominent feature, mild in the cases with unsystematized delusions and marked in the others. There were 10 patients with chronic cocain intoxication, in which, besides the physical signs of tachycardia, pallor and impotence, there were also interesting psychic disturbances. Insomnia was a constant symptom, and there was a restlessness and craving for muscular and intellectual activity. The characteristic visual and tactile hallucinations of the acute poisoning were still more marked and auditory hallucinations were also present. These induced delusive ideas, rarely systematized, mostly of a persecutory nature. To-

gether with these symptoms, there was a gradual mental and moral deterioration and final dementia. There were 11 patients with chronic mixed (cocain and morphin) intoxication; in these the special hallucinations of cocainism were observed, but what particularly characterizes these mixed cases is the more rapid development of the mental and moral reduction. The effects of sudden and rapid withdrawal of the drug are described. Gordon concludes, from his observations, that any attempt to find in acute or chronic morphinism and cocainism any of the well-known forms of psychoses will be futile. When, also, we compare intoxications from other sources we do not find any essential difference. Each agent may add a new special symptom, like the tactile hallucinations of cocain, but the fundamental syndrome remains the same. The chronic forms all lead to ultimate dementia.

STARR, "Epidemic Infantile Paralysis." *Ibid.*

Starr gives an account of the epidemic of infantile paralysis in New York City and vicinity in the summer of 1907. It began about May, the number of cases steadily increasing until it reached its height in August and September. Cases continued to appear in October and some were reported as late as December. The summer was warm and unusually dry; other infectious diseases were not particularly prevalent. It is estimated that 2,000 cases occurred in this epidemic with a mortality of probably from 6 to 7 per cent. Attacks of diarrhœa preceded the attacks in many cases, but it was impossible to trace any connection with the water or milk supply in this epidemic. The symptomatic picture was in some cases that of poliomyelitis of the ordinary type; in other cases, of poliomyelitis with bulbar paralysis; in others, of poliomyelitis with poliencephalitis of Wernicke. In a few cases there was true infantile hemiplegia, and this seems to have been more common last summer than usual, suggesting that the infectious agent attacked the cortical motor nuclei. Pain was a symptom particularly prominent in this epidemic. In many cases in which the arms were involved the respiratory muscles were also affected and when death occurred it was more from respiratory paralysis or heart failure than from any febrile affection. The acute onset usually subsided in a week or ten days and improvement was noticed beginning at the end of the second to the fourth week. In the great majority this has continued, and as a rule is likely to go on for two years. In many cases, in which the paralysis was not very intense, but still marked, there was a complete recovery, and the frequency of such abortive cases was rather unusual. On the other hand very rapidly fatal cases occurred, the mortality reaching the unusual figure of about 7 per cent. The paper includes a biologic study of the cerebrospinal fluid in

twenty cases which seems to indicate that the diagnosis of poliomyelitis by means of a serum reaction is not possible and throws no light on the etiology of the disease. The pathologic findings are discussed; the results of the later work in this direction have merely confirmed the statements of previous observers. As regards the bacterial origin of the disorder, authorities differ. Starr concludes from the facts, so far as known that while the clinical history of the disorder implies an infection, it must be admitted that up to the present time the organism responsible for the disease has not yet been discovered, and that it is still a matter of uncertainty whether the causitive agent is a micrococcus or a toxin. The weight of evidence, however, is in favour of the latter. Starr has collected accounts of thirty-seven epidemics of poliomyelitis of which he gives brief summaries. Some interesting points regarding prognosis are noted. The mortality of sporadic cases is very low, but in the epidemics it reaches the rather alarming figure of from 6 to 10 per cent. On the other hand they have shown that in 25 per cent. of cases there is complete recovery, compared to the very general persistent paralysis in sporadic cases, and while in many cases some permanent paralysis remains, a marked improvement almost always occurs. Thus a certain hopefulness is warranted in all non-fatal cases. For treatment, he advises dry cupping of the back to relieve the congestion in the early stages, or ice bags may have a like effect, and cool sponging may help to keep down the fever. Sedatives are usually required for pain; the child should be kept very quiet, a brisk purgative should be given, and the food during the first two or three days should be chiefly milk. Cushing has shown that the administration of hexmethylenamin results in the presence of formaldehyd in the cerebrospinal fluid, a fact which Starr has been able to confirm, and he suggests therefore the use of small doses of this drug during the onset of the disease or until fever subsides. Salicylate of soda has been used and good results reported. Starr prefers salicylate of strontium as less likely to irritate the stomach. After the onset is over and pain has subsided, it is best to suspend treatment for two weeks, and begin the use of strychnia, which should be pushed as far as consistent, with safety. Massage, manipulations and electricity are also useful. It is especially important to ward off deformities by the proper use of orthopedic measures and it is never wise to delay them till deformity has been produced. The orthopedic treatment of these cases is more important than any other.

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SCARLET FEVER: SOME OBSERVATIONS UPON THREE HUNDRED AND TWENTY-FIVE CASES.

BY

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Mr. President and Gentlemen,—

I need scarcely say how much honoured I feel in being asked to deliver to you the Address in Medicine, because to do so generally falls to someone more advanced than I in the profession; but in view of your extending to me the courtesy, the least I can do is to reduce to the briefest my apologies and explanations, and proceed at once to justify you, and myself. I have chosen a subject that is thoroughly well known, and I cannot hope to add anything material to it, yet the observation of a goodly number of cases must carry with it some knowledge that is usefully transmissible. Unfortunately for me, Dr. John H. McCollom, of Boston, overshadows us all in the matter of scarlet fever, and it is a species of impertinence to produce three hundred cases within a radius of a few hundred miles of his five thousand, but it is a kind of assumption that he will be the first to forgive.

These cases form the first series in the wards of the Alexandra Hospital for Infectious Diseases, Montreal, and are taken exactly as they come. They represent no special epidemic, although the winter of 1907-1908 is considered to have suffered a more than usual prevalence of the disease. I have heard it said that there is a regular recurrence curve of scarlet fever, and that 1908 is a "scarlet year," but I have not been able to find anything definite upon this supposition. Females were more numerous than males in the percentage of 54 to 46, and the ages at which patients were attacked fall exactly into the average order, viz., that the fourth year of life has the most cases. The numbers of cases rose

The Address in Medicine to the Maritime Medical Association, Halifax, July 2nd, 1908.

rapidly, as we had only three in the first year, and the liability declined rapidly after the ninth year; nearly 10 per cent. of all our cases were in children who were three years of age; the youngest was three months, and the oldest forty-two years; 58 per cent. of the cases were between the third and tenth years. In 325 cases we had 23 deaths, that is 7 per cent. This is a fair, even a good hospital death rate, but on its behalf I make no claims. The hospital series of Philadelphia and Boston give 9.72 and 9.28 respectively. Statistics of cities and countries at large are generally considerably higher, and of private practice among the better classes much lower.

The Mode of Infection.

It is a matter of popular knowledge that the first attack generally confers immunity; in this series there are but two cases of a reputed second attack, one child having previously been treated for scarlet fever in an infectious hospital. In one case, if the symptoms may be trusted, a relapse occurred on the thirty-first day; the primary symptoms were complete and the disease was definitely determinable; with the relapse the rash reappeared typically, on the face, neck and body, deeper over the folds, there was vomiting, headache, a fever of 103, and desquamation after both attacks. A recurrence of the rash happened in four patients, in one of them twice. The onset after a few days of well marked symptoms in patients who had been admitted with ill-defined symptoms, occurred four times, and these cases I think must have been cases wrongly diagnosed, who contracted the disease after admission to the wards. I admit no blame to the staff, nor to myself, because in a doubtful case it is a grave responsibility to take if one says that a case is not scarlet fever and sends it home; like the archer whose grandsire drew a good bow at Hastings, a man can do but his best. Where our responsibility does come home, however, is in the matter of so-called "return cases"—that is, where children contract the disease from patients discharged from the hospital; there are ten cases (3 per cent.) in which we lie open to this charge—an unusually high percentage. One to two per cent. is the figure in many hospitals. It must be admitted in fairness, however, that oftentimes clothes are packed away after a perfunctory disinfection, to be opened when the child returns from the hospital, and it is notorious that in clothes folded away the infection can linger for a long time. Leaving this possible excuse aside, cases yet remain. The discharges from the ear or from the nose or mouth probably are liable to cause infections, because the cases are always kept till desquamation is quite complete. It is hard to understand that a discharge from the ear (with staphylococcus, for example),

that recurs but faintly at intervals, can be infective three months after the disease, but I am afraid that in our present knowledge, the safest procedure is to admit it, and be governed accordingly.

In view of return cases, we have gone very thoroughly into final disinfection of the patients from the time at which the hospital was opened; the fact remains—and I have heard the statement from practitioners also—that if a child be discharged at the completion of desquamation, and live intimately with other children without the lapse of an interval of a couple of weeks, some of those children are sure to contract scarlet fever. We embody this belief in a printed form which goes with every case discharged. To guarantee the disinfection is an absolute impossibility.

Of the onset of the disease the common symptoms are sore throat, headache and vomiting; of 210 cases in which history of the onset is obtainable I find sore throat in 170 (81 per cent.), headache in 113 (54 per cent.), nausea and vomiting, nearly always the latter in 112 (54 per cent.), and all three together in 53, or 25 per cent. Indefinite symptoms, such as malaise, are not often volunteered by children; malaise was noted in 9 per cent. of cases, chills in $3\frac{1}{3}$ per cent., convulsions only twice, *i.e.*, less than 1 per cent; coryza, pains in the back, ears, eyes, abdomen, and in the glands of the neck were all occasionally noted.

I have said nothing of the infection of the conjunctiva, a symptom which is often observed, but which is quite untrustworthy as a sign of the disease; it has been observed in about 10 per cent. of the cases (28, to be exact), and occasionally there has actually been a purulent conjunctivitis, but this must be a complicating disease rather than a state dependent on the scarlet fever. Photophobia is a rare complaint.

The symptoms which one is in the habit of impressing upon students are the rash, the sore throat, the appearance of the tongue, and the glandular enlargement. The most important of these are the rash and the tongue; although the throat is a feature that is practically ever present, yet there are so many circumstances that interfere with the throat presenting a characteristic appearance that its real diagnostic assistance takes a place third to the two others. Of 218 cases in which I have notes of the date of appearance of the rash it was most often seen on the second day of the disease, the first symptom marking the first day of the malady. In 45 per cent. it was the second day, in 24 per cent. the first, in 22 per cent. the third, in 5 per cent. the fourth, and rarely on the fifth and even the sixth day. In more than 92 per cent. of the cases, the rash appeared in the first 72 hours. The extent

and site of the rash is very variable, and the face is not generally affected; in my own series there is a definite rash noted on the face only thrice in 279 cases, a figure which is due to the deficiency of the notes, although my own idea is that the face escapes in a large majority of cases. The flushed cheeks are doubtless due to fever, but the forehead can usually be relied upon to show it if it be present. The neck is frequently affected, but I am afraid is also apt to escape mention in case reports.

The rash was noted as being on the body and limbs, oftenest the legs, in 64 per cent. of all the cases, and on the body alone in 8 per cent. When it lies over a fold of the body or a limb, it is apt to be intensified, and on the other hand, its total absence from the lips has given rise to the characteristic "circumoral" pallor, which is often very marked.

Six times the rash was hæmorrhagic and three of these died. A light rash is desirable rather than otherwise as indicating a slight attack of the disease, although very severe attacks are sometimes fatal before the rash shows. It may be said that the popular superstition of the "rash going in," or "striking in" is a fallacy, but it has this degree of reason with it. The rash depends upon the activity of the superficial circulation; when the heart is failing it is at times to be observed that the rash fades, so that the disappearance of the rash may be a prognostic sign of the gravest moment.

As to the diagnosis of the rash, I am not fitted to speak from my own experience, and I will not burden you with the dicta of others. We have had exact simulation of the scarlet fever rash by the ingestion of turpentine twice, and by the so-called toxic erythema, at least once; the erythema following diphtheria antitoxin has closely simulated it many times, and one is, perhaps, too prone to dismiss as antitoxic any rash that appears in a case where serum has been administered. Though I have not knowingly seen them myself, I may remind you that quinine, strychnine, corrosive sublimate and iodoform may be accountable in this way. One case has never been cleared up in my mind: it was either scarlet fever followed immediately by typhoid, or typhoid fever with a toxic eruption, in which the reddening of the throat was merely a pharyngitis. At any rate, the tongue was not definite, and he went through his course with a slight subsequent desquamation.

The sore throat, a kind of interior manifestation of the external erythema, may be in less severe cases a useful guide: the bright reddening of the pillars and of the tonsils is useful, but less so than the punctate reddening of the soft palate or even of the posterior part of the hard palate; and a routine examination of Canadian throats makes one a

little sceptical of the accuracy of the sign on the tonsils and pillars save in well marked cases. Dr. McCollom's experience has led him to lay great stress upon the punctate eruption of the palate.

Of 255 cases with notes on the appearance of the throat, one showed no change; 80 per cent. showed a diffuse reddening, often with the special peculiarity of the palate noted above, and 20 per cent. showed membrane or fibrin in addition: in six of these diphtheria was actually present, but it leaves 44 scarlatinal throats (17 per cent. of all the cases), in which membrane, not diphtheria, was present. I cannot say that there seemed to be much danger of confusing these cases with diphtheria; those whose sense of smell is very acute believe that they can distinguish diphtheria by the odour, but for my own part, the odour has very often led me to call for bacterial examination which has failed to establish the existence of diphtheria. Therefore, I cannot dogmatize in this matter.

The tongue is, perhaps, the most trustworthy of all the signs of scarlet fever. Strangely enough, no one can tell just what was originally meant by a "strawberry tongue." Authors are at variance upon the subject, for some describe the strawberry tongue as white, others as red; the commonest form is that in which there is a white coating on the dorsum, which contrasts strongly with the bright red edges and tip; standing out in the fur are the more than usually prominent papillæ which are yellow or yellowish red: this appearance may well be called the strawberry tongue from its resemblance to an *unripe* strawberry. Next to this, the most frequently found appearance is the bright red glazed tongue, without coating, with the prominent papillæ which is not unlike a ripe strawberry, or better, a raspberry. The main character that concerns us is that the papillæ on the tip and for the anterior half-inch or inch of the edges are markedly enlarged and prominent, and this characteristic is not readily or rapidly lost; so that in a doubtful case, after eruption has disappeared, this character may enable one to determine the nature of the disease. Of 235 cases with notes upon the tongue, I find two in which the tongue was unchanged; 165 (70 per cent.) showed the coated tongue, and 68 (29 per cent.) the red tongue, papillæ in both being enlarged and prominent.

The glandular enlargement seems to me to be a weak point for diagnosis; there is little difficulty in any case in determining the enlargement of the cervical and submaxillary glands; the lymph nodes throughout the body elsewhere, stand on a different footing and they are enlarged in the same sense in which they are in typhoid fever, that is, but slightly; to so small an extent, indeed, that I have never suc-

ceeded in persuading myself that the point is a very useful one. In 351 cases of this series, a general glandular enlargement was reported in 183 (73 per cent.); a partial enlargement, that is, the cervical groups, in 53 (21 per cent.), and it was stated that no enlargement was present in 15 (6 per cent.). I give these data for what they are worth, which I am afraid, is very little. The spleen has been palpated very rarely indeed; I find it noted in but two cases, and it is examined in every case.

It may be well to digress here, to say a word as to the responsibility of the physician in the recognition of scarlet fever; it must be recognized every time it is humanly possible to do so, not because the law says it, but for the patient's sake. I think my earliest medical recollection is of a girl, a relative of my own, falling over in a convulsion after a trifling attack of scarlet fever; the days in which her life hung in the balance are yet vividly in my mind. There lies the risk. Many times a difficult case appears in your practice; do not wait a minute longer than you can help in making up your mind; it is easy to say, "The symptoms are obscure to-day; the rash may be brighter to-morrow"; and to-morrow, if it is not so, to say, "I probably over-estimated the rash yesterday." Remember that you can but do your best, and this is so dangerous a disease that a few weeks of quarantine is a little thing compared with a short life, full of albumen and casts. If your mind is made up now, do not in the future let yourself reconsider the evidence; obstinacy of purpose in this thing is a virtue.

The course of the disease in 128 uncomplicated cases averaged seven days; this is not much shorter than the average duration of fever in all cases, complicated and otherwise, which was but 8.76 days in 298 cases; the uncomplicated cases averaged 50½ days until desquamation was complete, although this is calculated upon the basis that desquamation was completed two days before discharge, which is not very accurate, but the only means at my disposal.

The degree of fever, too, is a comparatively low one, as in the majority of cases it has its maximum below 103°. In only 6 per cent. of our series did it reach or surpass 105°, and it is a significant fact that of 17 cases in which the fever reached 105° or over, 10 died.

The maximum of fever was as follows:—

106° or over	2 cases
105°—106°	15 cases
104°—105°	43 cases
103°—104°	43 cases
102°—103°	67 cases

101°—102°	69 cases
100°—101°	42 cases
99°—100°	6 cases

The general rule in a hospital chart is that the admission fever is the maximum, and it gradually descends with morning remissions until the normal is reached. With this, however, we are not yet finished with the thermometer, for 78 cases showed a subsequent noteworthy fever. This was attributed 14 times to the ears, 13 times to the glands, 7 times to albuminuria, 4 times to exacerbation of the inflammation of the throat, thrice to the joints, and 10 times to evident inflammation elsewhere, but 27 times, or in more than one-third of all the cases, no adequate cause could be found. I feel sure that there is an inflammation somewhere to account for these, but one is often unable to find it. These figures do not take into consideration at all the cases in which the fever of the attack does not subside, but remains on account of the persistence of some complication after the rise of temperature due to scarlet fever might reasonably be supposed to be past. It is to be remarked here that one becomes accustomed to finding a very inconsiderable glandular swelling, apparently the only cause for a considerable rise of temperature; on the one hand the fever of children is easily excited, and on the other, it may be that the palpable gland is the only outward manifestation of a much greater lymphoid reaction than we expect.

Complicating Diseases.

Favouring the belief in a personal devil, one child of three and a half years came in with diphtheria, caught scarlet fever, had chicken-pox, got œdema of the glottis, was intubated a number of times, coughed up the tube one night, it rolled under the bed and could not be found; it was supposed she had swallowed it, tracheotomy saved her life; she developed bilateral otitis and mastoïditis, had her mastoids trephined, and finally departed on the 116th day cured, but disconsolately wailing. The hospital staff bore the separation well.

Diphtheria.—Nineteen cases had diphtheria with scarlet fever, of whom four died; of the nineteen I can be certain only with regard to two that they contracted the disease in the hospital, and for our peace of mind these recovered.

Measles.—Measles complicated the disease but twice in the series, breaking out on the eighth and twelfth days, when the scarlet fever rash had disappeared.

Erysipelas.—Occurred thrice in the series, but there was no suspicion in any case that it was a hospital cross-infection.

It is timely here to refer to the question of hospital "cross infections"; the above cases include all in my series in which the staff could carry the disease from one ward to another, as we admit in the Alexandra Hospital only the four diseases, and the erysipelas ward is small and often closed. While these cases are few in number, I am well aware that the greatest danger is not of other diseases being carried to the scarlet fever wards, but of scarlet fever being carried to the other wards. Of the occurrence of this I have no figures, but it has not at any time become a serious defect. The only persons who are exposed to the possibility of carrying infection from ward to ward are the medical superintendent, and the day and night superintendents of the nurses; they wear caps and long gowns which cover them completely, and wash the hands and face on leaving the ward, putting on a fresh gown and cap every time they enter the ward. For a time we adopted the wearing of an overshoe in the scarlet fever ward, but this is not at present observed.

Chicken-pox.—We had a small epidemic of seven cases of chicken-pox, which necessitated a rapid removal from and sterilization of the ward concerned.

Other complicating diseases were tuberculosis (2), typhoid fever (1), and cerebral tumour (1). Again, 6 cases were suffering from burns of the skin, 5 had had recent operations, and 3 had been vaccinated, a total of 14 which came under the heading, not of surgical scarlet fever, but of "scarlet fever in the wounded," as it is termed.

Complications.—The most important of these is nephritis, the most common otitis media and adenitis; tracheitis, alone or combined with bronchitis is common, but frequently of so slight importance as to be negligible.

Otitis media.—Including cases of all degrees of severity we have had 83, a percentage of 25½. Of these, however, no discharge occurred in 26, leaving an actual occurrence of 57 suppurative cases (17½ per cent.). These cases appear to group themselves, so that at times it would seem as if a ward were "all ears." It is generally communicated directly from the mouth cavity by the Eustachian tubes, though occasionally it may be a blood infection. Is there any way by which the prevalence of this infection can be lessened? We have most strenuously sought to keep the naso-pharynx clean by many different means, including sprays, gargles and irrigations. "Irrigation of the nose," says McCollom, referring to young children, "on account of the danger of causing middle ear disease, cannot be too strongly deprecated." If an irrigation can be used at all, the mouth and nose are not closed, and in

the absence of any heightened intra-buccal pressure, the tube, if closed, will protect itself. Young children, however, cannot be got to understand the process as a rule; they struggle and gasp, and whenever the act of swallowing is induced, the Eustachian tube opens. At such a moment there is, of course, danger that the solution may carry infection into the tube. Nevertheless, wherever there is a good chance of the proper behaviour being learned by the child it ought to be carried out. The form of medication used matters scarcely at all, for the water and its mechanical effect is the principal thing. In view of the amount of mucous often present, salt solution is useful.

Of the subsequent results as to the hearing of these 57 cases I know nothing.

Our routine in the wards is to examine the ears very frequently by means of the speculum; it is surprising how often the eye of one who is not a specialist fails to receive warning of an impending perforation. The onset of otitis may be very variable; the danger exists from the outset.

The time at which the otitis began in 67 of these cases is to hand; 24 times it was in the first week, twenty times in the second, and from the third to the seventh week, the figures were 6, 7, 4, 3 and 2 respectively; one case occurred on the 100th day. Of the 24 cases in the first week, they are very evenly divided among the seven days; 3 cases seemed to happen with the very onset of the disease, and are counted as on the first day. These figures give a greater liability in the first week of the disease than any of the series I have seen published.

Of the 83 cases, both ears were affected in 25, the right alone in 30, the left alone in 28.

Adenitis.—Adenitis, as a complication, refers to those inflammations of the cervical and submaxillary glands which occur either after the acute throat symptoms have subsided, or which persist after the time that the angina might reasonably be expected to subside. As would be expected, the appearance of a swollen node is not necessarily attended with an exacerbation of the inflammation in the throat; the glands become large, generally firm, smooth, and tender. Those at the angle of the jaw are the most often affected.

Our series shows 69 cases (21 per cent.), of which I can find but three which required incision and drainage. My memory would have inclined me to say more than three, but such at least is the statement of the figures; the glandular inflammation is practically always accompanied by fever.

Rhinitis—This is a very troublesome accompaniment of many cases,

and it is noticed in this series 33 times, *i.e.*, about 10 per cent. In the cases in which it is severe, the secretion is free and purulent, and the result is excoriation of the nostril-edge and often a kind of impetigo on the upper lip and the adjoining parts, as well as infection of the nail edges of the fingers.

Tonsilitis.—It happens often that, after the throat has begun to get better, and the attack to disappear, an exacerbation of the infection occurs, which may partake of many of the characters of tonsilitis or which may be merely pharyngitis. I have seven such cases, to which I add eight others that I have called stomatitis. This infection of the entire mouth is one of the most dreadful complications of the disease; the throat becomes dirty, the tonsils ulcerated, muco-pus streams down from the nasal vault, the lips are eroded and fissured, the mouth can be but slightly opened on account of the lips, which bleed, and may be herpetic or impetiginous as well; the tongue is coated, the breath foul, and, in my experience Klebs-Loeffler bacilli are not present. Five minutes after washing the mouth, the child is once more drooling thin bloody slime from the half shut lips. The systemic disturbance is great and the toxic state of the patient extreme. One of these cases became a real noma in its clinical features; and yet another made a tragic end by erosion of the tonsillar artery. This unusual accident occurred in a boy of six years, on the 20th day after the onset of scarlet fever; the attack had really appeared to pass off, but about the end of the second week, secondary infection of the mouth and throat appeared, grew bad, then better. The day before death, and the third day before, cultures failed to find diphtheria bacilli; the child was apparently getting well, when hæmorrhage began from the nose and mouth; death occurred in about two minutes, without much external bleeding. At autopsy the stomach was full of blood, and the cause was determined as above. What bacterial examinations we have made generally show streptococci among other forms, and in all the severe cases, I have tried antistreptococcus serum; I am afraid I have not given it a fair trial, because too often it is not administered till the case is desperate, or at least well advanced. Peritonsillar abscess occurred once.

Tracheitis occurs frequently, no doubt often allied wtih a slight degree of bronchitis; it will be evidenced by cough and expectoration; as an exception, thoracic examination may disclose crepitations. Seventy-eight cases (24 per cent.) fall in this category. Aphonia occurred thrice, once after diphtheria, and twice in neurotic girls.

Pneumonia.—Four cases showed this, one of them having appeared to catch scarlet fever while suffering an attack of lobar pneumonia; though

very ill, he recovered; the three others, in which broncho-pneumonia was a true complication, died. Pleurisy was found twice, both times without effusion, and empyema, though at times suspected, has never eventuated.

Alimentary tract.—Vomiting is noted as a frequent sign of onset, but it was further noted during the course to an extent sufficient to deserve comment in 35 cases (10 per cent.). In the severely toxic cases, it is a most intractable symptom.

The bowels in general suffer little from this disease; the rule is constipation, but I think this is due to the confinement to bed; it has been my own rule to treat the bowels as one would in a case where no other disease existed; purgatives can be freely administered, if it is thought necessary. As exception to the above statement a bad attack of scarlet fever in the very young is sure to be attended by an entero-colitis, with green stools, frequently with mucus and occasionally with blood; bowel irrigation is suitable for its treatment. 36 cases (11 per cent.) occurred in this series.

The Nervous System.—Convulsions have been present in but two cases; delirium in but twelve; doubtless slight degrees of mental wandering at night are not reported, but it certainly is not very marked, even in moderately severe cases.

Meningitis.—This happened but once, although one other case gave the symptoms pretty completely. Recovery was so rapid that we were probably dealing with the condition aptly called "toxic meningism," so well seen at times in typhoid fever. The undoubted case lived three weeks, under daily lumbar punctures; on the 15th day there were several convulsions, and I blame myself that I did not urge a decompressive operation, as when the final convulsions occurred on the 21st day the only notable feature remaining was the hydrocephalus.

Cardio-vascular system.—The effect of scarlet fever toxin or of the toxins of the secondary infection upon the heart is of considerable importance; endocarditis as a direct result of the secondary infections is reported to be fairly common, but I cannot say that I have been certain of it more than once; myocardial degeneration, as evidenced by dilatation and irregularity of the pulse, is, in my experience, far more frequent. Some degree of a noticeable murmur has been noted in 32 cases at entry; these I shall not deal with, and I have no doubt they were not, as a general thing, indicative of organic change. But 12 cases gave undoubted evidence of a dilatation during the course of the disease, and in 11 other cases irregularity of the pulse was noted, but without any apparent enlargement; 6 other cases gave very definitely

the signs of a sudden partial collapse, 3 with marked cyanosis. To sum up, there was in nearly 9 per cent. of all cases, some evidence of disturbance of cardiac mechanism, which, as far as I can recollect, appeared to be the cause of death in two or three, and disappeared totally in the others. I am not able to state how far a secondary infection was responsible for these, but I suspect quite largely. Osler states that the myocardial changes are less common than the endocardial ones; it seems fair enough to estimate that the cases of dilatation, at least, were connected with weakening of the muscle, but, of course, it must be allowed that the irregular pulse and the cyanosis may quite well be associated with some effect produced upon the nerves of the heart by the scarlatinal toxin. The treatment of the cardiac weakness and irregularity is of the usual kind; strychnine and whiskey are the agents most commonly used by us.

Arthritis.—This is an interesting complication, which happened in 17 of our cases (5.2 per cent.). Once a real acute rheumatism was present (a recurrence). The joint disturbance may be but slight and transitory but at other times the joints are swollen, red, painful and tender just as in rheumatism. It is likely that there is a secondary infection of the joints in these cases, but luckily few of them go to suppuration. Many joints tend to be involved at the same time; the order of frequency with us is knee, shoulder, wrist, ankles, elbows, fingers. The vertebral joints of the neck were affected twice, and of the back once. Fixation of the joints and cold applications are generally the only treatment required.

Among other complications, we have found orchitis, vaginitis (5), jaundice, herpes, purpura, eczema, and in four cases, abcesses of different parts, often the fingers.

Nephritis.—From this most important of complications we have been very free, and upon this hangs my story—at least the part of it that is most important. Ordinarily, the urinary changes to be expected are a febrile albuminuria: McCollom states that in 1,000 cases but 28 per cent. were found free from albumen during the febrile stage—that is, what we call the "febrile albuminuria"; our own findings are at wide variance with this, and the urinary examinations have throughout this series been slavishly made: in 312 cases, only 56 (18 per cent.) showed albumen at any time, blood was found 39 times, and casts 21 times; these phenomena were spread over the urines of 76 patients, so that only 24 per cent. of our cases showed any departure at any time from the urinary normal. Routine examination, twice a week, is kept up till the patient is discharged, and during the febrile period the urine is examined daily or every second day. The presence

of blood, nearly always microscopic, was noted in however slight quantity, and only rarely over a number of days in succession; casts occurred generally in concert with albuminuria, twice as isolated instances, and five times in cases which died; this leaves but fourteen instances of their being found, generally in connection with albuminuria. Two of these were previous cases of nephritis, so we have the appearance of casts in a dozen instances as being due to scarlet fever. It will, however, be less confusing if I deal only with the albuminuria. First of all, no case died of nephritis, and 7 of the 56 observations were in patients who died, and two others were in cases who were chronic nephritis at entry, which leaves 47. In 32 of these, albuminuria was found on one, at most on two occasions; of two others I have neglected the particulars, but there are 13 cases left with what may be called nephritis, of which 5 cases lasted from three to ten days; of the remaining 8, 3 cleared up entirely before leaving the hospital; 2 others were slight in degree, but even without cutting out the last 5, we have at most 8 cases (2.5 per cent.) in which nephritis can be said to have happened as a result of scarlet fever. In 7 cases, a late occurrence of albuminuria was attended by a sudden rise in temperature to a considerable height. Four times a very considerable degree of puffiness of the face occurred without any albuminuria; one case, a small child, presented a remarkable recurring puffiness of the hands, which came on suddenly and disappeared quickly, reappeared and again disappeared; this was thought at the time to be a phenomenon related to angio-neurotic œdema.

We have no instance of a nephritic convulsion. Oliguria has been observed but rarely—22 times on various occasions. Let it be replied to this, that we have been exceptionally favoured with a light class of case; for our purposes, it does not matter. What I wish to come to is treatment.

I have found it an excellent working rule that every case is kept upon milk diet for three weeks from the day of onset, and in bed for the same length of time. This is quite irrespective of the severity of the case; I explain to adults in many cases, the reason, and we have no complaints upon this score. It is the ward rule, and since there are no exceptions, there are no objections. Milk diet, too, means milk diet; this includes only junket and whey and ice cream, when procurable; fruit juices are allowed.

My reasons for this are that the kidney is to be relieved of every possible strain; take the substances that are supposed to entail work upon the kidneys—urea, hippuric acid, phosphates, alloxuric bodies,

and so on; the end-products of nitrogenous metabolism are considered to be the most important irritants; meats, eggs, fruits of some kinds, and so on, contain one or the other; water, milk and sugars are almost the only things left to us; the carbohydrates, flour, meals, etc., do not contain much, but some; a milk gruel contains much more than does milk. Therefore, for my part, I keep to the ones of which I am sure; it may perfectly well be conceded that the risk in a slight case is almost nil, but it is the exceptional case of nephritis one is most anxious to prevent. The hardship to the patient is but slight, and it is no exaggeration to say that our youngsters on discharge are generally very fat. You have all probably at some time or other, echoed the remark, that "we all eat too much"; for once, be brave enough to put the cure into practice. If the reasons appear good to you, practice the method; if not, leave it alone. For my own part, at present, I fully believe in it, and without making any claim as to the results, there is in them nothing to make me desirous of change. The end of the second week is the time at which nephritis most often makes its appearance; it seems to me highly reasonable that at this time, more or less critical, the patient's chances are greatly bettered if he be in bed. During convalescence, too, as the patient's time is not valuable, we are hard-hearted enough to put them back to bed upon any alarm, a rise of temperature, or a threatening complication.

These two, *i.e.*, rest and milk diet, are the main points in our treatment. Cold applications are usually made to the neck in anginose and glandular inflammations of any severity; local applications of antiseptics to the throat internally and washings of the nasopharynx with Dobell's solution are used when the patients are sufficiently old or sufficiently tractable. The patients are encouraged to drink water as often and in as great quantity as they will, and it is with difficulty that this is carried out to a sufficient degree to be satisfactory to myself. Do not to be misled by von Noorden's very sensible teachings with regard to water-restriction; the competent kidney fairly revels in water. With the onset of nephritic anuria we are dealing with a condition of affairs widely different.

For fever, and for the patient's comfort, sponges are in most frequent use and packs, cold or tepid. The observation that cold bathing tends to cause albuminuria in the healthy, and to increase it in the albuminuric, need not be taken into consideration. Nor am I accustomed to measure the good effects of sponges or packs by the effect upon the temperature; in fact, I regard the taking of temperature for the purpose of seeing the effect of a bath or a pack as a waste of time. Perhaps it comforts the nurse, but she has generally other distractions.

During desquamation we are not in the habit of using any inunction on the skin; probably its only efficacy is that it prevents a widespread diffusion of the particles of skin, which in a scarlet fever ward is of little consequence, in comparison with the saving of time and work and the increase of cleanliness.

A procedure that we followed at first, but have given up, is the administration of a prophylactic dose of anti-diphtheritic serum; this is the routine practice of the Boston City Hospital in the Infectious Department; we found the cost heavy in return for an advantage that was but doubtful. Of the 121 cases in which it was used, a serum rash was observed in 11, on an average on the tenth day.

It was an observation of much interest to me that this spring, by reason of the large number of patients in the department, we "overworked" one of our two main wards. It had not been disinfected nor completely cleaned for several months; infection after infection of a secondary kind, sprang up, many of them very severe, and it finally was forced upon us that the ward was in all probability to blame, for it had, of necessity, good opportunities to acquire a thorough stock of pathogenic germs. With the moving, the run of infection certainly ceased.

Have I succeeded in making clear to you some of my convictions, let me call them, with regard to scarlet fever? The important things are these:—Make the diagnosis at the earliest possible moment. Look at the skin, all of it, with the patient completely stripped, if a child; look at the throat, especially the palate, and the tongue, especially the papillæ. If you have made the diagnosis, do not later, for a moment, even mentally go back upon it. Lay down the law as to treatment. If I seem to speak true things, lay down twenty-one days milk diet and twenty-one days bed. When you are tempted to weaken or recede from this position, just think how, when the patient dies of nephritis, they will say, "Dr. Blank was not very strict when he had the scarlet fever."

THE SURGICAL RIGHTS OF THE PUBLIC.

BY

JOHN C. MUNRO, M.D.,
Surgeon-in-Chief, Carney Hospital, Boston.

In accepting the courteous invitation to address your Association today, I realize deeply the compliment that you bestow not only upon myself, but upon the great number of American surgeons that are your

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friends and neighbours. A political boundary divides your people from my people, but in our profession there is no dividing line, for the medical and surgical property of one people is, or ought to be, that of the other. The customs and the methods of education of the Canadian differ in minor details from those of my own countryman, but there are grievances, slight wrongs, and evil tendencies that crop up equally in both our peoples, and it is to call your attention to and to enlist your sympathy in some of these that I venture to express the results of observation extending over a period of twenty years.

While listening some time ago to an interesting address by Prof. Müller of Munich, on the German system of insurance of the labouring classes against sickness and death, I was impressed by the fact that the insurance was established not as a charity, but because the poor have the right to be protected against the various accidents and illnesses incident to our complex modern life. At that time it occurred to me that against unnecessary suffering, disease and death, the public, both rich and poor, has an equal right to be protected by means other than that of insurance. In other words, if modern surgery can lengthen life, can protect against malignancy, can nullify suffering better than can be accomplished by other therapeutic measures, the public has the right to know accurately when and to what extent this is possible.

It is not assumed for an instant that protection and alleviation in the case of many diseases cannot be obtained by means that are not surgical. We have merely to witness the results of vaccination, serum inoculation in diphtheria, and a host of similar remedies. As a matter of fact, it is interesting to note that the public has practically asserted its right to be protected against smallpox, diphtheria, malaria, yellow fever and other well-known diseases.

During the extraordinary surgical advances that have been made in the last decade our profession has been so busily engrossed in grasping the new developments that come crowding one upon another that it has rather lost sight of the poor public and its right to a share in the general progress. We have been inclined to let the people discover for themselves the immense amount of time, money and suffering that can be saved to them, and yet we are in the position of placing before them a host of well-established facts on which we base our advice as regards surgical treatment. More and more have surgery and medicine grown to be scientific and accurate. To a greater and greater extent can surgeons promise definite results. The changes in technique and operative principles that are constantly taking place lead steadily to better results because they tend ever to greater simplicity.

Is it not a good time to stop and view ourselves from the stand-point of the lay public—a public that in the main is intelligent, progressive and full of common sense?

However much we may deplore the fact that surgery is necessary, that it may be an opprobrium—which I doubt very much—we must be willing to admit that, given ideal conditions, enormous temporary and permanent benefit can in numerous instances be vouchsafed by operations, and by operations alone. Surgery has its own field. It readily yields to other and simpler therapeutic measures when satisfied that it itself is without avail. At the same time it is keenly alert to invade the vast field of internal medicine when the latter fails to accomplish the ideal; ready to retire at once if some new discovery demonstrates that disease can be conquered by means other than surgical. What surgeon is there who would not gladly throw down the knife if a serum or any simple remedy were discovered that would definitely cure malignant disease? Some such remedy is bound to come in the course of time; slowly, it may be, but none the less surely. In the meantime innumerable types of disease are safely and happily treated by the mechanics of surgery, and it ill becomes us as surgeons to belittle the aid that we can give, for the mere reason that at some future time surgery may become obsolete.

Every year I am told that we have attained the highest limit in technique. This is far from the truth, because hardly a week passes without a surgeon somewhere in the world demonstrating a discovery or reviving some long-forgotten fact that reduces mortality, shortens convalescence, or aids in the restoration of normal functions.

It should be made clear at the outset that the public must expect of surgeons not absolute efficiency, but a reasonable degree of it. Such a degree can be acquired by any surgeon who has aptitude, a love for constant self-improvement, and a readiness to make sacrifices to his ideals. Of this type there are many in your country as well as mine. The masters of surgery, on the other hand, are few in number. It is to them that we of the rank and file must look for the instruction and inspiration which should constitute a large and by no means unimportant part of their work. It is only a relatively small proportion of the people that can have the direct benefit of their skill. To their teachings the medical as well as the surgical practitioner must listen, and in the light of the accomplishments of the advanced surgical clinics of the world it is not an exaggeration to assert that diagnoses, especially of abdominal and cerebral diseases, are more accurately made by the surgeon or by his medical *confrère* who follows his own cases to the operating table than by the internist who limits his observations to laboratory, personal

and post-mortem examinations. The failure of the public to realize this fact accounts in great measure for the many sometime curable diseases that are brought to the surgeon after they have reached the incurable stage. The co-operation of the internist and the surgeon in all cases potentially surgical is something that can be demanded consistently by the people. Each one is a healthy check on the other; their combined judgment is safest for the patient.

With the emergency operations and the problems suddenly forced upon the doctor far from surgical centres this paper has nothing to do. Every surgeon admires and respects the men who meet the difficult problems of this kind, alone, ingeniously and fearlessly. The history of medicine is full of heroes of this class, and no one has greater appreciation of their work than the active surgeon in the large city.

I would deal here rather with the question of elective major surgery as attempted in our large and small surgical centres by men without surgical skill or training, by amateurs, and by the nondescript commercial type of doctor that operates for the fee and not for the benefit of the patient.

The internist and the family doctor, assuming that he is a general practitioner, cannot keep pace with the constant advance made along surgical lines. It is physically impossible for him to keep in touch with the best surgical literature and progress. If, therefore, a patient comes for advice concerning a disease that theoretically or practically can be classed as surgical, the patient has a right to the opinion of a practical surgeon for or against intervention. This applies not only to the commoner diseases, like gall-stones, appendicitis, cancer etc., but to the less common border-line diseases in which both medical and surgical treatment are of value. The internist, prejudiced at the start against surgery, or slow to follow the best advances in the world's clinics, may presume to decide a question that is or ought to be purely surgical. Such a decision may be as much beyond his province as it would be were a surgeon to attempt to decide as to the nature of an anæmia without a blood examination. This breach of faith with the public—for it can hardly be called anything else—is in my experience one of the most common factors that leads eventually to incomplete operative success. The public, slow to grasp the full significance of such conditions, is, nevertheless, gradually awakening to its rights in this respect.

The remedy is simple. No doctor need be so narrow or prejudiced that he cannot seek counsel in doubtful cases. To ask for surgical advice does not imply any necessity for accepting its verdict. That lies with the patient. Let him be given the facts according to the best

modern lights, and the decision will rest with him whether to accept an operative risk or not.

Worse than this is the hesitation, narrowness or ignorance—call it what you will—that allows the internist to deal with a surgical lesion until forced to advise surgery, not as a preventive or as a curative measure, but as a last resort. Every experienced surgeon will agree with me that with all his so-called boldness in operating he has never had the courage to assume the responsibilities endangering the lives of his patients that the indifferent or ignorant practitioner assumes at times in advising against surgical intervention or in withholding operative relief. The surgeon with his knife in the presence of appendicitis, gall-stones, cancer of the stomach or intestines, empyema and a host of similar diseases is the embodiment of conservatism when compared with the practitioner who elects to treat such diseases medically.

After a patient has decided upon operative treatment he has the right to demand, first of all, asepsis, proper anæsthesia and intelligent after-care. He should realize, however, that, although absolute asepsis is the ideal to which all surgeons aspire, practical asepsis alone can be guaranteed in the light of our knowledge at the present time. We should teach the public that the highest degree of asepsis is best attained by a permanent corps of surgical workers trained under responsible heads; that a properly equipped hospital with such trained assistants entails less risk to the patient than the haphazard equipment of the private house or the irresponsible *régime* of many of the private hospitals which are open indiscriminately to operators, each with his own methods of operative technique.

I think it can be safely said, indeed, that a morning's work at a private hospital, with its multifarious and changing authorities, is rarely carried through without many lapses in asepsis, for the most part harmless, but occasionally calamitous in result.

Breaks in asepsis are the result of some sin of omission or commission on the part of the operating staff, including the surgeon, his assistants and operation nurses. Too often is the blame for septic calamities ascribed to the sponges, the suture material or the dressings. That any one of these may be at fault is possible, but in the well-conducted operating room proper examinations and control of the material should prevent such accidents save in very rare instances. Too many times have I seen a sterile catgut blamed for the result of a slovenly, dirty surgeon or assistant. So long as surgery is an art and not a mechanical trade lapses in asepsis are occasionally bound to occur, even in the best clinics, in spite of all reasonable precautions. The important point for

the surgeon, and for the public as well, is to recognize and make use of the means best fitted to reduce these chances to a minimum. We must all recognize that there is some risk attending any and every operation; a risk that often is so small that it may be practically disregarded.

Under the immeasurably diverse conditions of heritage, environment and physical and mental defects, it is out of the question to allow for every possible accident, and this fact the patient as well as the surgeon must recognize where an operation is undertaken. Provided the surgeon uses precautions that are reasonable in the light of modern scientific knowledge, he can be assured that he has done all that should be expected of him. The patient, on his side, must be willing to take certain chances provided the result sought by operation is going to lessen the sufferings and dangers that are inherent in the existing lesion or disease.

The public should realize that the dangers, immediate and remote, from anæsthesia are very small. Such dangers do exist, however, and it is the surgeon's duty to minimize them in every possible way. A skilled anæsthetist, preferably a permanent member of the surgical corps, will cause far less damage than the student or the friendly family practitioner who etherizes occasionally, and who is more interested in the operation than in giving the anæsthetic. In my own experience the worst and most dangerous etherizers are the unskilled pupil house officers. To the credit of certain individuals of this class, however, it must be said that after a month's training some of them develop into first-class anæsthetists, generally at about the time they are ready to graduate to a higher grade. These show their ability early, and exhibit, as it were, an inborn talent in this line; others never learn to be satisfactory etherizers, no matter what or how long their experience.

Another class that rivals the student in dangerous etherizing is the graduate with long experience in general practice. He rarely gives ether safely or in a way that aids the operator. His experience has been won mainly at the bedside of the lying-in patient, and in anæsthetizing a patient for a major surgical operation he applies methods similar to those which he uses in his obstetrical work.

An unskilled etherizer will make certain of the difficult operations impossible; he will prolong beyond safety an operation that should be short, and he will increase in any case the chances of a post-operative pneumonia. These facts are not generally known by the laity, but that does not warrant neglect on the surgeon's part in this particular. The public has just as much right to demand a skilled anæsthetist as to demand a skilled surgeon.

Much the same could be said of the unskilled assistant, the ever-changing house surgeon, and the general practitioner who assists in

major operations at rare intervals. It is difficult for the latter to realize the essential points in aseptic technique; not being accustomed to the ways of the surgeon, he modestly hesitates to give what assistance he would like to give, and often, being ignorant of the consecutive steps of an operation, he delays and hampers the surgeon to a degree that he little realizes. I believe that every surgeon who has had much experience in this line will confess that in not a few cases he has been obliged to substitute a partial or a less difficult operation because he was unwilling to expose his patient to the added risks that would come with the unskilled helper.

As soon as the public appreciates that the after-care of major surgical cases, especially of those in which the abdomen has been opened, is just as important as the operation itself, it will insist that the immediate convalescence be guided by the surgeon himself or his capable assistant. To operate from choice in a serious case far away in the country, placing the responsibility of the after-care upon the family doctor, who at the same time is in charge of patients with all types of disease, is unjust to the doctor and to the patient, and it leaves a loophole for divided responsibility in case of calamity.

No surgeon can safely outline the treatment of any abdominal case if he allows for the innumerable contingencies that he knows to be possible. If every patient passed through the stage of convalescence in a routine way the problem would be easy, but, as a matter of fact, such is far from the truth.

Another demand that the public can and should insist upon with the surgeon that is attached to a public hospital is that any and every major operation, especially if it involves the abdomen, should be performed by the surgeon himself or under his direct supervision. He is appointed to the hospital staff presumably for his special surgical fitness. His position presupposes long training in anatomy, pathology and assistance at surgical operations. The public seeks the services of a hospital because of the skill of its staff, and it has the right to demand that the full responsibility of all major operations should be taken directly by the staff. In order to attract students, to become popular, or to shirk labor, the surgeons of many hospitals delegate more or less operative work to immature and irresponsible house pupils; because of this the public suffers. Many times have I seen a young, inexperienced house surgeon struggling with some difficult problem at the operating table, a problem that has arisen suddenly and unexpectedly, and I have wondered if the complacent surgeon who has deserted his post would be willing to subject one of his own family to this amateur surgery. Much in the way of minor surgery can be properly delegated to one's assistants,

but to place the responsibility that attends major operations upon a young surgeon with the experience of a few months is fundamentally wrong, while occasionally it is criminal.

Granting the fact that a hospital staff is or should be selected because of its capability, both collectively and individually, it behooves those of us who are responsible for the selection of our co-workers to be both catholic and discriminating in our choosings. We must acknowledge that it is through the work and enthusiasm of the individual that surgical progress is maintained, and if we are to exact the respect of the public for our hospitals each individual member of the staff must in some one or more respects live up to the highest surgical standard, while at the same time his general qualifications are those of the broad general surgeon. This significance of the individual was aptly expressed as follows at a dinner recently given to Cardinal Logue: "The potency of the individual is greater and nobler than the influence of class, or organization, or even institution." To no type of man does this apply better than to the surgeon of our large hospital. How frequently do we see the progress and advancement of the entire institution dependent on the activity, breadth and scientific enthusiasm of a few, often against or in spite of the narrow opposition of the many.

To some extent the criticism as regards the house pupil pertains to the amateur surgeon who operates now and then for the excitement or for the fee, without pretending to be reasonably skilled in technique or reasonably posted in surgical progress. The smaller hospitals that are luxuriantly cropping up throughout the country are in this respect not only capable of doing much harm, but they are actually guilty thereof. The large and promiscuous staffs in control of these hospitals always include a few ambitious men eager to attempt surgery beyond their ability. The term of service of the staff constantly shifting, allows but a limited experience to any one member, and divides the interest and responsibility of the staff as a whole. It would be far better, as I pointed out some years ago, if such a hospital should select two of its younger members to train themselves for the necessary surgical work by acquiring thorough anatomical, pathological and technical foundations, and should compel them to keep in line with modern surgical advance year in and year out. Two well-trained men of this sort should be able to take proper care of the surgery of a large district, and take care of it well, whereas at present much of the work is badly done by innumerable half-trained general practitioners, who, while doing the best that they can, are not giving the public what it has the right to demand.

This would also do away to a great extent with the present system of

calling upon the consulting surgeon from the large centres, who only too often operates hurriedly and on insufficient examination and knowledge of the patient, because he relies upon the data furnished by the family physician. In other words, too many major operations are done under these circumstances without satisfactory study of the patient and his disease, and the after-care is delegated to practitioners without the surgical training and experience that the public can justly demand. This system trains the consulting surgeon into hasty and snap diagnoses, and he necessarily gambles now and then on the chances that he can pull out of a difficult situation if he happens to be caught. But what of the patient under these circumstances? He rarely loses his life, to be sure, but I believe that any experienced surgeon will agree with me that at times an operation is not complete or satisfactory, or that a secondary operation is required later, because of the insufficient data, the inadequate assistance, or the imperfect operating-room equipment.

That the small hospital is invaluable to the town in which it is situated no one can deny, but, under the conditions under which most of these hospitals are conducted at the present time, that such an institution should undertake, except in case of necessity, the serious surgical problems, I believe to be ill-judged at least. It is only a question of time before surgeons will demand that no doctor assume the responsibilities of major surgery without required special courses of training and apprenticeship. If surgeons do not demand it the public will.

Furthermore, a patient who supports himself and his family by his daily wage should insist that he be kept in the hospital for as short a time as possible consistent with good surgery. He should not be allowed to lie around the ward waiting for the surgeon, engrossed in outside affairs or indifferent to his responsibilities, to make up his mind to operate. Neither should he be kept for an undue length of time for the purpose of teaching students. In the large clinics a decision for or against operation can be made within forty-eight hours in most cases. The necessity imposed upon the surgeon of earning his living away from his charity clinic is responsible for much of this form of neglect, and the blame, therefore, really rests on the public itself, badly educated in such matters and encouraged by an indifferent profession.

Could our hospital trustees but see the wisdom of encouraging the surgeon to earn his living in the same building in which he devotes so much time to the pauper sick, both classes of patients would be benefited. This fact is so obvious to anyone who has carefully considered the subject that it is unnecessary to enlarge upon it here.

The public has certain rights in the question of surgical fees. The surgeon has equal rights, but he seldom obtains them. To take up the abuse of medical charity would lead me too far from my subject; that such an abuse exists, especially in the eastern part of the States, is too flagrantly evident to need any confirmation here. To some extent the existence of this abuse is responsible for the overcharges to which surgeons are occasionally driven. All patients except paupers and some wage-earners should be compelled to pay a fee for medical and surgical care commensurate with their earning capacity, just as they are obliged to pay for their provisions, their luxuries or their dissipations. The wealthy should pay liberally for major operations; they should not be robbed. The self-respecting wage-earner, whether on daily wages, a salary or in independent business, should not be treated as a pauper. He should be compelled to pay some fee in proportion to his earnings, the number dependent on his income, etc. The public has abused over and over again the medical charity that flourishes to such a degree in our large cities. May it not be because of this abuse that the struggling surgeon is guilty at times of squeezing all that he can from his wealthy client? Our practices need reforming without doubt, but the abuse in this respect is infinitely less than that practised by the public which is competent to pay.

That surgeons divide fees with the family doctor bringing them surgical cases is a well-recognized evil. Fortunately it exists to a much smaller extent in the East than in the West. That it is fundamentally wrong and pernicious goes without saying. It is based on commercialism alone. As soon as the public realizes that it is deliberately sold by its family doctor—in whom it has full confidence—to the surgeon that allows the largest graft, and that it is not sent to the surgeon best equipped for taking charge of the case, the public itself will stop the practice at once and emphatically. It seems inconsistent with American character that a patient should be bartered voluntarily.

To enter upon the relation of animal experimentation as applied to the development of surgery is very tempting. Its bearing on the principles of surgery and on surgical technique is of tremendous import, so far as the great mass of the people is concerned. The latter has learned to trust in the unselfish honesty of the medical profession, and the responsibility is far more serious than the anti-vivisectionists can realize if humane surgical advance is checked by the indiscriminating and narrow bigotry of ignorant partisans. I believe that if a deliberate and thoughtful expression of views of the practical surgeons of the world were taken to-day, an overwhelming majority would gratefully acknowledge its obligations to animal experimentation, as instanced in the daily

relief of suffering and prevention of disease. It is almost pathetically comical that we should be confronted time and again by the ignorant and probably thoughtless views of two defunct and famous surgeons upon this subject. Both men lived at the very dawn of modern scientific surgery; neither was young enough to grasp the significance of the new surgical discoveries, while each one had been a too-dominating power in certain narrow lines of surgical advance to be willing to accept the broader teachings of others. One directed his genius to mechanical problems; the other demonstrated advancement by means of human experimentation, all of which had to be worked out at a later period by laborious scientific research. The thoughtless and possibly hasty views of these men have been hurled at the thousands of modern surgeons by the opponents of animal experimentation, but I am confident that if Bigelow and Tait were alive to-day their dominating geniuses and grasp of the truth would enrol them as most enthusiastic and powerful allies in the struggle against the anti-vivisectionists. The layman, as a potential surgical patient, is more keenly interested in this controversy than he realizes. When the surgical thunderbolt strikes him or his family, he wants and demands as his right the use of every nicety that will diminish risk and lead to recovery. I know, and you know as practical surgeons, that we daily use the results of laboratory research, and that if we were deprived of all that has been handed down to us as a result of animal experimentation our surgery would lapse back to a degree frightful to contemplate. This is the side that the layman must seriously consider when he is urged to oppose the profession that has always worked and struggled on behalf of suffering mankind, and that will fight for the principle of animal experimentation because it knows it is just, humane and merciful.

There is one more protest that may be made in behalf of the public. We hear much loose talk about the direful nervous shock that follows operation, and the public is well trained to expect a long and tedious convalescence on that score. With certain ill-balanced, badly-trained people this may be the case, especially if the patients are cared for by over-fussy or unscrupulous physicians, but as a general rule in my experience the post-operative effects are grossly exaggerated. Most patients can be trained out of such calamities as easily as they can be trained into them. With all the traumatic neuroses that have cropped up since suits for personal damages have become so frequent, it is incumbent on our profession to avoid augmenting this class of patients by ill-timed and ill-judged encouragement. In my own experience the patients that suffer most from post-operative neuroses are those that were allowed to become septic by culpable delay in submitting to operation. The bad result can be traced to the sepsis and not to the operation. The contrast is

so marked in what might be termed control operations in non-septic cases that one who has observed it readily recognizes the difference. When we consider that a generation ago most operations and accidents were serious because of the septic complications, it is not difficult to understand why the laity at the present time has a such a dread of anything associated with surgery. It can be stated conservatively that the lay public is about a generation behind in its realization of the advances accomplished in the science and art of surgery. I believe that I am not unduly severe if I accuse our medical brethren of being about five years behind.

Criticism and censure of existing conditions is not a difficult task. Of one, however, who condemns so freely you have the right to demand some suggestions for reform or reconstruction. In a short general address like this I can enter upon this phase only to a superficial extent.

Fundamentally the great and important factor in remedying many of the evils to which I have called attention is a higher uniform standard of general and medical education. This in the States is being pushed forward most ably and energetically by the Council on Medical Education of the American Medical Association, and we all owe our most loyal fealty to its endeavors. In addition to this general groundwork, I believe that so far as the making of surgeons is concerned, who shall be entitled to stand before the public as capable of dealing with the larger problems of surgery, much can be done even at the present time in the way of special training and special licensing. With regard to the latter, it may be best to adopt some form of approval by a recognized examining board somewhat similar to that which obtains in England. Thus, a candidate for the position of surgeonship in a responsible hospital or in a rural community would be obliged to prove his fitness for the work, his knowledge of anatomy, pathology and the science and technique of surgery.

A reform in the construction of our hospital staffs I believe to be equally important. Some such system as that in vogue in Germany should be adopted by our hospitals in the larger cities where there is opportunity for teaching. As constituted at present many of our public hospitals are overweighted by cumbersome surgical staffs that could easily be reduced to a third or a sixth of their present number. A chief of staff should be placed in full control of fifty to one hundred beds. If in charge of a larger number his assistants or colleagues should be as capable of assuming full control as the chief himself. The latter should be allowed very great power in the selection of his assistants from among those who have demonstrated their fitness and ability while in subordinate

positions. Thus permanent or temporary vacancies would be properly filled, and responsible positions in distant hospitals would be open as prizes to tried, capable candidates. This would do away with the present system of graded rank, which, however efficient it may be in the army or in the commercial world, is poorly adapted to the profession of surgery and to surgical hospitals. Because a surgeon has performed his work regularly and perfunctorily while in a subordinate position, without advancing himself or his art, is no reason that he should be elevated to the head of a division when a vacancy occurs. As a result of this misapplication of civil service rules one such chief of service can and will block the progress of his division in a way little realized by the general public, or even by the practising physician. Let every man aspiring to become a chief of staff make good; do not hand him a gift with so great responsibilities just because he happens to be older than his colleagues. Have we not all seen certain surgeons, originally appointed by political favor, nearly paralyze the active service of a large hospital when placed in a position of responsibility? Has such a man the right to trade on his assumed ability at the expense of a public which cannot easily comprehend the exact state of affairs?

The same principle which applies to the visiting staff of a hospital applies to the student assistants. As I have indicated elsewhere, uniformity and permanency in the operating and ward staff is of the utmost importance in obtaining uniform and satisfactory surgical results. The routine, inexpert work in the wards, the laboratory and the operating room should be done by students, delegated by the schools and accepted without competitive examinations, because such work should be a part of the student's curriculum. For more responsible positions the selection should be by a process of elimination, dependent on the demonstrated ability and aptitude of the student assistants. The highest positions should be allotted for a term of years to selected candidates who are planning to enter upon a surgical career. These should be salaried, and they should be encouraged or compelled to undertake original work. When at last these men are graduated from their assistantships they will be in a position to offer themselves as candidates for junior positions on the staff, or they may emigrate to other cities or towns, where they will be entitled to undertake the surgery of their district, building up a surgical nucleus that is capable of developing indefinitely, varying only with the ability of the individual surgeon.

To elaborate this scheme is unnecessary. It is essentially that which exists in Germany. When we consider the splendid surgery that the Americans have shown themselves capable of developing in the face of

our clumsy and restraining systems, one grows enthusiastic at the possibilities that lie before us, provided we could develop the art along better, safer and more liberal lines.

In dealing with the private hospital problem I can easily be misinterpreted, but I believe that much can be accomplished by which the public will be dealt with more fairly. It seems only right that the well-to-do patient should be treated as carefully and as efficiently as the pauper, but such is far from the fact in some of our large centres. Many of our private hospitals are run as money-making schemes. It is a great temptation to keep our patient in the hospital longer than necessary. It is easy to encourage the neurasthenic to waste weeks in an institution when we know that he or she would be far better off in the woods or at work. Without responsible residents in these hospitals emergencies endangering the life of the patient arise occasionally that cannot be dealt with properly. The same holds true, as I remarked earlier, with regard to the operating room equipment. If we are to have private hospitals the administration can and should be brought as near to that which exists in our best public hospitals as is possible, and until that is attained we are not dealing quite squarely with our patients, from whom we derive our incomes.

To kill the growing tendency towards a division of fees, it is necessary to keep the public informed as to the facts. Whether this should be done through our local or our national societies is not yet clear, but I believe that it is best undertaken by the larger body of men. A curious and annoying type of graft that is not infrequently worked upon the surgeon is that in which the family physician, who presumably knows the financial status of his patient, makes one price for operation to the patient and another (much smaller) price to the surgeon. To expose this it is necessary that the surgeon have his business dealings directly with the patient, thereby losing, of course, all future work that might otherwise come to him from the family doctor whom he has exposed. The public has a right to know how much it pays for surgical care and to whom the amount is paid. The moment we begin to juggle with it in this respect we lose the right to pose as a profession the first object of which is not to make money.

In conclusion, I would not have you infer that there is no other side to surgery than that of criticism and fault-finding. No profession is without flaws. Every profession reaches a higher plane with each decade, and it is mainly by the elimination of the petty obstacles that our profession is destined to attain a level that can never be reached by others.

As a matter of fact, the public can feel that, taking American surgery as a whole, both that done by the masters and that done by the rank and file scattered over the length and breadth of this continent, there is no surgery in the world more intelligent, more skilful, and more considerate of the rights and feelings of the patient. The rate of advance is almost phenomenal. We in the States are wont to boast of our commercial progress, which is apparent to everybody. Few beyond those working in hospitals, laboratories and medical libraries realize that the advance in our profession is parallel with that in our commerce. The advance in the one, however, is for the most part financial and scientific as applied to finance, while the advance in the other is scientific, humane, educational and life-saving.

A significant quality that belongs to our profession is the generosity of the surgeons of one locality towards those of another in freely giving and receiving the good things that spring up in our art. It is a most refreshing sign of broad culture, and it does much to destroy the petty jealousies that are a heritage of past generations.

More and more do we see the internist and the surgeon working side by side; more and more do they appeal to the authority of the laboratory, and, finally, with all the petty bickerings and inconsistencies that are to some extent inevitable in all professions, any one of us when his name is called in the ranks of the American surgeon should be proud to answer "adsum."

THE TREATMENT OF CEREBRO-SPINAL MENINGITIS BY FLEXNER'S SERUM.*

BY

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Epidemic meningitis is attended by such a high mortality, and is so often followed by disastrous effects, that any plan of treatment attended by promising results in experimental work is well worth an extended trial in man. We venture to bring the subject before this Association in order to direct attention to the experimental work which has been carried on during the past few years, and to point out the lessened mortality which has resulted from the application of these methods in man. Evidence is rapidly accumulating to show that good results are obtained by the use of an anti-serum injected directly into the spinal

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canal, and if the morbid processes can be controlled, it seems probable that the senses of sight and particularly of hearing may suffer with decreasing frequency.

Kölle and Wassermann (*Deut. Med. Woch.,* 16, 1906) produced a serum by inoculating horses with both dead and living cultures of meningococci and with extracts obtained by shaking the cocci with water. Much difficulty was experienced in the experimental work owing to the rapid change of virulence in the cultures and to the varying susceptibility to meningococci in animals of the same species. It appeared, however, that protective substances were formed in the serum of injected horses and that it was more efficacious than normal serum. Experiments carried on *in vitro* satisfied those observers that anti-bodies were formed and that they were more powerful in horses treated by living cultures of meningococci.

Jochmann (*Deut. Med. Woch.,* 1906), after experiencing the same difficulties of Kölle and Wassermann, succeeded in obtaining a number of virulent cultures, of which one loopful killed mice in twelve to fourteen hours. A serum prepared by inoculating horses, first with a dead and later with living cultures, has given fairly good results in man. Kromer treated 17 cases, giving 20 to 30 c.c. hypodermically, and repeated this on the second and third days. In 11 cases the second injection was given directly into the spinal canal. Of the 17 cases only 5 died; in 9 the temperature fell rapidly and lessening of the headache and of the rigidity of the neck were also noticed.

Schone (*Therapie der Gegenwart,* 1907) treated a series of 30 cases with this serum with a death rate of 28 per cent., as against 53 per cent. in untreated cases. Thirteen cases required only one injection, but often several were required before the temperature fell, and as much as 180 c.c. was administered.

Flexner's work on meningitis is by far the most valuable contribution we possess on the experimental pathology of the disease, and he has also obtained a serum from horses which is of a high value in producing immunity and in preventing a fatal result after lethal doses of meningococcus. Choosing monkeys as most nearly resembling man, he was the first to produce meningitis by injection of cultures of meningococci through a lumbar puncture. The animals for the most part died rapidly and the lesions were similar to those found in man.

The pathological results are outside the subject of this paper, and the details need not detain us now, but they are of importance in connexion with the remarkably successful results obtained by treating these animals with serum, and form an important link in the chain of evidence bearing on the value of serum treatment.

Flexner's first experiments were made on guinea pigs with serum from a goat, previously inoculated with cultures of diplococci, and it was found to have a slight protective influence. Other substances, such as bouillon subcutaneously, were also found to confer increased resisting power upon guinea pigs. Subsequent experiments were carried on with horses' serum, prepared by inoculating the animal, at first subcutaneously and later intravenously with living cultures. After four or five months of intermittent injections the protective power of the serum was tested on guinea pigs. The results, although not striking, were rather better than in animals treated with normal horses' serum or bouillon.

In monkeys much more promising results were obtained by using an homologous anti-serum. Simultaneous injections of diplococci and serum prevented the development of severe symptoms, and by injecting the serum six hours after the cultures the animals could be saved from almost certain death.

Turning to the results obtained clinically from the anti-serum obtained from the horse, Flexner and Jobling (*Journal of Experimental Medicine,* January, 1908) have recorded the histories of 47 cases treated in different localities. Of these 34 recovered and 13 died, a percentage of 72.3 recoveries and 27.6 deaths. Of the fatal cases 4 were fulminating, *in extremis,* and died within a few hours of the injection. These results reverse the usual outcome of the disease when treated on a symptomatic plan, the mortality in these being about 70 to 80 per cent.

The results obtained by Robb are equally encouraging (*British Medical Journal,* February 15th, 1908). Of the 30 cases treated to a conclusion, 22 recovered and 8 died, a mortality of 26.8 per cent. About an equal number of cases were treated in Belfast at home without serum, and of 34 treated to a conclusion 29 died, a mortality of 85.2 per cent., practically the same mortality as occurred, 82 per cent., in the hospital previous to the introduction of serum treatment. From these figures it would appear that the type and mortality of the disease was almost uniform, and the improved results must, therefore, be attributed to the serum.

Our own cases are too few to be of any statistical value, but we venture to report them, as they appear to support the claims made by those whose experience has been larger.

Case I.—No. 102, 1908. Linda B., 26 months, admitted to the Montreal General Hospital, January 29th, 1908. With the exception of a fortnight's diarrhœa, beginning six weeks ago, has always been healthy.

On January 25th the child began to vomit and became very peevish; the temperature rose to 101°. Vomiting has occurred on several occa-

sions since, and there has been much restlessness and peevishness. On admission she is well nourished and well developed. The fontanelles are closed. There is marked restlessness, the arms and legs being thrown about, and there are sudden, sharp cries. The head is retracted and the neck muscles are rigid, so that the chin cannot touch the sternum. There is slight nystagmus, the pupils are equal and active to light. Both legs are markedly spastic; no Kernig; knee jerks are diminished; Babinski on right side; no clonus; abdominal reflexes absent. The other organs are normal. Pulse 148 to 168, respirations 48 to 50, and temperature 102⅘ to 104⅖; leucocyte count 13,810.

Lumbar puncture under chloroform was made and 30 c.c. of very turbid fluid, containing numerous flocculi, withdrawn, and 30 c.c. of serum injected. Smears of the fluid showed numerous polynuclear leucocytes and very numerous Gram-negative diplococci, both within and outside the cells. The growth on blood agar is abundant and confluent.

At 8.30 p.m., two hours after the puncture, retraction of the head was much more marked and she was very restless and noisy, tossing about and occasionally having spasms of general rigidity accompanied by marked tremor, lasting from five to fifteen seconds. The pulse was thready and could not be counted at the wrist.

January 30th: Restless the previous night until a hot pack was given. The retraction of the head and rigidity of the neck is now only very slight; spasm of the legs slight, sleeps most of the time, occasionally uttering a loud cry and tossing about for a few minutes; a few rhonchi over lungs. Temperature 100⅖ to 103⅖; respirations 48; pulse 140, good volume; leucocytes 5,600 (two counts). Lumbar puncture, 20 c.c. very turbid fluid removed, and 10 c.c. serum injected. The cultures showed a much lighter growth, the colonies being discrete, but numerous.

January 31st: Child much quieter, crying only when handled. Pulse 128 to 140. Head is rather more retracted; no Kernig sign and legs no longer rigid; leucocyte count 8,720. Lumbar puncture and 47 c.c. of opalescent fluid, not nearly so turbid as yesterday, withdrawn; there are no flakes of lymph. 13 c.c. of serum was injected, 1 c.c. per minute. The cultures from this fluid showed twelve discrete colonies, the same amount of fluid being used each time. After the injection the child was somewhat restless for two or three hours.

February 1st: Temperature rose from 101 to 104⅘° after the inoculation yesterday—the usual afternoon rise seen in this case. This morning it was 100°, pulse 132. Lumbar puncture and 46 c.c. withdrawn, 10 c.c. of the serum injected. Only eight colonies grew from the culture. Leucocytes, 14,080.

February 2nd: Temperature 99⅗ to 100⅘°. The child notices everything, turns its head and there is only slight retraction.

From February 2nd to February 14th there was a continuance of the intermittent temperature, rising from normal or subnormal to 103—105.

February 4th: 2 c.c. of fluid obtained by lumbar puncture, showing no growth after forty-eight hours. Leucocytes 23,200.

February 7th: A serum eruption consisting of red erythematous blotches appeared. February 10th, lumbar puncture showed a heavy growth of the meningococcus. 11th, the child had been peevish for some days, but in spite of the high temperatures appears bright; leucocytes, 24,200; 35 c.c. withdrawn by lumbar puncture and 10 c.c. serum injected. Growth of meningococcus.

February 12th: More restless, very dull and pale; at lumbar puncture 75 c.c. fluid withdrawn and 20 c.c. serum injected; a profuse growth was obtained from the fluid. Leucocytes 15,800.

February 15th: It was decided to open and drain the spinal canal, but owing to a misunderstanding the surgeon punctured and washed out with normal saline solution. The fluid yielded a growth. The child was very restless and irritable after coming out of the anæsthetic. The temperature on this and the following days moderated, only occasionally reaching 102.

February 16th: Only 2 c.c. of fluid obtained by puncture, 10 c.c serum given. Retraction of the head more marked.

In the later days of the illness the child was quiet and conscious; she vomited a good deal and died in convulsions on March 10th.

Autopsy performed by Dr. Lyman.

Brain.—Weight 930 grammes. On removing the calvarium the cerebral hemisphere gave a distinct feeling of fluctuation. On stripping back the dura mater the convolutions are greatly flattened, slightly sticky, dry and pale. The sulci contain no inflammatory exudate. The vessels in the pia show no engorgement. No fluid escapes until the tentorium is cut, when a considerable quantity of slightly turbid fluid flows out. On removing the brain the whole base is seen to be covered with a thick, white fibrinous exudate. All the cranial nerves are covered with it and it extends down over the medulla and spinal cord. The lateral ventricles are distended with a large quantity of pale fluid; the cerebral hemispheres are flattened. There is not complete obstruction of the aqueduct of Sylvius, but a few flakes of fibrin are adherent to its walls. The middle ears are normal.

Spinal Cord.—The spinal cord is covered from the medulla to the cauda equina with a thick, sticky, yellow exudate. The dura mater is

bound down to the pïa arachnoid by many fibrinous adhesions (not normal trabeculæ).

Bacteriology.—Brain.—Meningococcus in pure culture, in membranes and in hydrocephalic fluid.

Heart blood, Spleen and Liver.—Negative.

Anatomical Diagnosis.—Epidemic cerebro-spinal meningitis, chronïc hydrocephalus.

Remarks.—This case was the only fatal one, and no definite effect was obtained on the temperature and pulse by the serum. A rapidly decreasing number of bacteria were found in the spinal fluid on four successive days after daily injections of serum, and sterile fluid was present at the fifth puncture. Unfortunately, however, cocci again appeared in the spinal fluid after nine days. In the light of the post-mortem examination it appears probable that the cocci remained active in the hydrocephalic fluid and this probably proved the focus from which reinfection of the membranes took place.

It is impossible to draw conclusions from the effects of irrigation of the spinal canal with saline fluid in a single case. After this procedure the temperature no longer showed the great daily rises and the one subsequent puncture yielded only 2 c.c. of fluid, which was not examined bacteriologically. The condition of the child, however, failed to improve.

In a subsequent case, and inspired by Cushing's example, the advisability of injecting the ventricles with serum was considered, but improvement began about the time it was contemplated. Had this procedure been carried out on this case it is possible the bacteria might have been destroyed in their last stronghold.

After the first injection there was a notable fall in the leucocyte count, from 13,810 to 5.600; on the third and fourth days, however, they again rose to 8,720 and 14,080, and later on to as high as 23,200 at a time when the lumbar puncture showed a sterile fluid.

Case II.—(M. 219, 1908). M. F., a girl, aged six years, admitted on March 10th, 1908, with extreme restlessness, fever, headache and hæmorrhagic spots.

She was perfectly well until Monday morning, March 9th, when she awoke at 7 a.m. with severe headache and nausea, and remained in bed. She was drowsy and extremely peevish all day, and although nauseated did not vomit. On the 10th small hæmorrhagic spots appeared on the trunk and limbs, and she was admitted to the hospital at noon.

Present condition.—Fairly well nourished child of fair complexion and delicate features. The head is slightly retracted and the muscles of the back of the neck are rigïd. The child is restless, extremely

irritable and peevish when handled, crying out and begging to be left alone. There is some photophobia, and a hæmorrhagic rash over the body, particularly on the limbs and buttock.

The knee jerks are increased; plantar flexion; no ankle clonus; superficial reflexes present; no Kernig's sign. The pulse regular, 112, of low tension. The heart and lungs are normal; temperature 101 on admission. Urine acid 1029, no albumin; sugar is present with Fehling and phenyl-hydrazin tests; no casts. The leucocyte count is 21,800.

Under general anæsthesia (C. E. 1 to 2) lumbar puncture was performed, and 21 c.c. of very turbid fluid, which was under considerable pressure, removed. 24 c.c. of Flexner's serum was given at the rate of 2 c.c. per minute. A hypodermic of $^1/_{12}$ gr. morphia was given and she slept all afternoon, being very irritable when roused. The pulse after the lumbar puncture was very small and weak, and improved after camphor oil. The fluid showed a profuse growth of meningococci on blood agar.

March 11th: Very restless during the night and was given a hot bath which quieted her for one hour, and then $^1/_{12}$ gr. morphia was given with good effect. This morning the head is a little more retracted and the neck is very rigid. The eruption is fading. Leucocyte count has fallen to 13,350. The temperature which fell to normal after the injection yesterday has not risen over 99⅖, and the pulse 104. Herpes has developed.

A second lumbar puncture was performed and 21 c.c. drawn off, and 22 c.c. of serum injected, and a hypodermic of morphia $^1/_{10}$ gr. was given afterwards and nourishment by the stomach tube. The fluid was slightly turbid and meningococci were absent in smears and cultures (in numerous subsequent examinations of fluid obtained by puncture made by smears and cultures on blood agar, meningococci were absent). Dr. Mathewson reported a single small hæmorrhage in each retina.

March 12th: Still very irritable and peevish; headache every three or four hours for fifteen or twenty minutes; pulse 100; temperature 98⅖ to 99⅖; leucocytes 12,500. Urine 1016, sugar has disappeared. Lumbar puncture and 15 c.c. of turbid fluid removed, and 12 c.c. antiserum injected; 1-12th morphia administered before puncture, which was done with a general anæsthetic.

March 13th: Head less retracted; is brighter and less irritable; pulse good volume, 100; temperature 98 to 100⅘. The hæmorrhagic eruption has almost disappeared. Knee jerks present, but not increased.

No pathological reflexes. Leucocytes 11,800. 29 c.c. of fluid withdrawn by lumbar puncture, and 17 c.c. of anti-serum injected.

March 14th: Child bright in morning, became peevish and irritable later; temperature 98 to 100⅘; pulse 84 to 120. Leucocytes 11,000. Lumbar puncture and 32 c.c. of fluid withdrawn, and 11 c.c. anti-serum given. The fluid withdrawn is stained yellow from the serum and there is a very slight sediment. During anæsthesia respiration stopped and artificial respiration had to be resorted to. Headache and restlessness came on, requiring morphia.

March 15th: Temperature 99⅗ to 97⅖; pulse 84 to 92. Is bright and has no rigidity of the neck.

March 16th: Is bright and well. Temperature 98 to 100; pulse 84 to 108, 120 at time of puncture. Lumbar puncture 39 c.c., yellow stained, almost clear fluid and 8 c.c. serum injected. Irritable for a short time afterwards. Leucocytes 11,200.

March 18th: An urticarial eruption appeared to-day, and is slightly itchy; temperature 98 to 99; pulse 84 to 108.

March 19th: Temperature 98⅕ to 100; pulse 92 to 108. 37 c.c. clear yellowish fluid withdrawn with only an occasional leucocyte; 12 c.c. serum injected. Irritable, with bad headache after recovery from anæsthetic; leucocytes 12,800.

March 20th: Is dull and lies quietly in bed; head slightly retracted and a Kernig sign present for the first time. Temperature 98⅕ to 101. On lumbar puncture 67 c.c. of very slightly turbid fluid present; 30 c.c. serum injected.

March 22nd: Temperature 97⅗, rising to 101 eight hours after the serum. The head is retracted and the child lies quietly and is only irritable when turned on her back. Kernig's sign more marked. Leucocytes 10,300; 61 c.c. clear yellowish serum withdrawn, and 20 c.c. of serum injected.

March 25th: Gradual improvement has gone on and the child is bright and comfortable. There is slight rigidity of the neck; Kernig sign on left side only; temperature 97⅖ to 99.

April 19th: Discharged perfectly well.

Remarks.—This case is an example of a mild type of the disease, and would probably have recovered without serum. The remedy was, however, begun on the second day of the disease and may have checked severe developments. Following the first injection the cocci disappeared completely from the spinal fluid, a feature noticed in our subsequent cases. The leucocyte count also fell markedly from 23,000 to 12,800 after the first injection.

Owing to our first case having proved fatal, larger and more frequent doses of serum were administered. Eight punctures were made, and 121 c.c. of anti-serum were given. In spite of these considerable doses a slight relapse occurred, as is so frequent in the untreated disease. The temperature fell from 101 to normal after the first injection. No marked improvement in the general condition was noticed after any single dose of serum, and, in fact, the child was often noticed to be more irritable and to have headache.

In the light of subsequent experience it would appear that the doses were unnecessarily frequent, and following some of them there was a rise of temperature on the same or following days (March 12th, 13th, 19th and 22nd). In guinea pigs Flexner noted that too large doses of serum prejudiced the result by reason of its own toxicity, and it seems not improbable that a similar result may occur in man.

Case III.—(No. 265, 1908). Annie M., aged six years; admitted March 30th for headache, fever and vomiting.

A brother died of cerebro-spinal meningitis three months ago, and a sister, *Case IV,* is now suffering from the disease. She was perfectly well until Saturday, March 28th, when she complained of severe headache in the afternoon and vomited several times. On Monday afternoon the headache was worse, the head retracted and the neck stiff.

On examination she is well developed and well nourished. The face is dull; she is rather restless but not peevish, and answers questions readily. There are six or seven small hæmorrhages on the back and buttocks. Temperature on admission 104⅘; pulse 144. The head is not retracted and the chin can be brought almost to the sternum. The pupils are equal, 3 mm., and active. Knee jerk is just present on the right, absent on the left; Achilles sign absent; no clonus or Babinski sign. There is slight rigidity of the right leg, but no Kernig. Leucocytes 25,600.

Lumbar puncture and 41.5 c.c. of moderately turbid fluid removed and 28 c.c. serum injected at the rate of 1 c.c. per half minute. After coming out of the anæsthetic the child was restless for an hour or two and then slept. Meningococci were found in cultures but not in smears.

March 31st: Temperature 103 and 98⅖ in the evening. The head is decidedly retracted and the neck rigid. A well marked Kernig on both sides and knee jerks are absent. Lumbar puncture and injection of 24 c.c. serum; cultures of fluid negative. Leucocytes 21,800.

April 2nd: Temperature 99⅖, pulse 100. There is no headache, but still some rigidity of the neck; the Kernig is less marked and the hæmorrhagic spots have almost disappeared.

April 3rd: Rigidity has almost disappeared and the chin can be brought forward to the sternum. Temperature not over 99⅖. Lumbar puncture, fluid withdrawn was stained yellow by the serum, but clear; 23 c.c. of serum injected.

April 5th: Temperature rose to 100⅗, but no rigidity of neck; vomited twice after food.

April 6th: Temperature 99⅗; 32 c.c. given. In the evening the temperature rose to 102 six hours after the puncture. Leucocytes 11,800.

April 7th: Temperature rose to 103 and fell to 99 in the evening. Some rigidity of muscles of neck and Kernig is more marked.

April 8th: An urticarial serum rash is present, the child is not so bright and the neck is a little more rigid than before. Lumbar puncture and 15 c.c. of blood stained fluid withdrawn, and 14 c.c. of serum injected. No growth from the fluid. The temperature rose from 99 to 101 eight hours after the injection.

April 9th: Serum rash is more profuse, involving all limbs, trunk, buttocks, and face. The neck is decidedly rigid. On lumbar puncture 40 c.c. of clear fluid withdrawn, and 25 c.c. serum injected. The temperature rose from 100 to 102⅘. No growth from fluid.

April 10th: Vomited during the night. Is decidedly worse and complains of some headache. There is slight retraction and marked rigidity of the neck. Kernig's sign marked. It was decided to stop administration of serum.

April 12th: Improved yesterday and to-day is bright and well. No rigidity of neck; Kernig present; temperature normal. The subsequent course was uneventful; the temperature did not rise again above 99⅖, and she was discharged on May 10th. The fundi were normal on April 14th.

Remarks.—In this case there was a prompt fall of temperature after the first dose of serum and bacteria were only found at the first puncture and not subsequently. The use of the serum was continued owing to slight elevation of temperature, and on several occasions there was a rise of temperature amounting to three or four degrees a few hours after its use. Vomiting and increased retraction and rigidity of the neck also appeared and these symptoms passed off in two days after ceasing its administration. Apart from the high temperature at the outset, the symptoms were comparatively mild, and although a favourable result might have been anticipated, yet such a prompt defervescence may fairly be attributed to the first dose of serum.

Case IV.—(M., 264, 1908). Edith M., aged nine years, admitted on March 30th, for headache, fever and vomiting.

Patient, a sister of *Case II.*, is a well developed and well nourished child. She complains of severe headache and pain in the back of the neck. The head is retracted and the muscles of the back of the neck are rigid. The mind is clear. She is rather peevish if moved and occasionally moans with pain. The pupils are equal and active. Temperature 102 on admission, pulse 140. A well marked Kernig and knee jerks present; no pathological reflexes. Leucocyte count 30,200. On lumbar puncture 45 c.c. of very turbid fluid were removed under great pressure, squirting at least 15 inches, 28 c.c. of serum was injected, 1 c.c. per half minute. Smears from the spinal fluid show no organisms, but there is a growth of meningococci on blood agar.

March 31st: Temperature fell gradually from 102⅗ to 100 during the day, and the pulse from 148 to 120. Still has severe headache and pain in the neck. Head is markedly retracted and Kernig is more marked. Leucocytes 31,000. Lumbar puncture and 55 c.c. of moderately turbid fluid removed and 28 c.c. of serum injected. There were no cocci in smears or in culture.

April 1st: The temperature ranged from 101 to 99, the pulse from 92 to 120. The child is brighter and the head less retracted.

April 2nd: Temperature 98 to 99⅘; pulse 120 to 96. Head only slightly retracted. Herpes on lips and chin; leucocytes 10,600. Lumbar puncture and no fluid obtained.

April 3rd: Temperature 99⅗ to 101⅘; 15 c.c. of slightly turbid blood-stained fluid, yielding no growth; 12 c.c. of serum injected. After puncture the temperature rose in eight hours to 103⅕; she was very restless and complained of severe headache, backache and pain in the legs.

April 4th: The temperature fell from 102⅖ to 97⅗; leucocytes 21,000. Lumbar puncture and 30 c.c. of serum injected.

April 6th: Leucocytes 22,900; puncture and injection of 32 c.c. was again followed by a rise of 2°, to 102. On April 8th and 9th, 23 and 28 c.c. of serum injected, and on each occasion the temperature rose. The child was very restless, the neck rigid and headache present. No organisms were found in the fluid after centrifugalizing and washing with sterile water, cultures being made on blood agar. An urticarial serum rash appeared on the 9th.

April 22nd: Improvement began twenty-four hours after last injection, rigidity lessening and headache disappearing. The temperature varied from subnormal to 100⅖; it rose to 103⅘ in the evening, and 50 c.c. of fluid removed, and 24 c.c. of serum injected; leucocytes 14,200.

April 23rd: Neck rigid; vomited three or four times: Kernig more

marked: leucocytes 9,320; temperature 102 to 103, falling to 100⅗ in evening.

April 24th: Temperature, morning 100⅗, evening 98⅗; very little rigidity, no headache or vomiting. Following this the temperature did not rise above 99⅕, and the child made a good recovery and was discharged on May 10th. A distinct optic neuritis was found on April 14th, which had completely disappeared on May 1st.

Remarks.—This case was an example of a moderately severe infection. The first injection of serum was followed by a fall in temperature and pulse and improvement in the other symptoms after forty-eight hours. The meningococci completely disappeared from the fluid after the first injection.

On reviewing the case there seems to be no doubt that the serum was given more frequently than necessary and toxic symptoms resulted from its use. These consisted in a rise of temperature of 1 to 3 degrees, headache, increased rigidity of the neck, retraction of the head and sometimes vomiting. It is probable that simple puncture to relieve pressure would have proved more beneficial than the repeated doses of serum. A slight rise in the leucocyte count was noted after the first injection instead of the usual fall.

In this case the temperature fell gradually to normal; the pulse from 140 to 92 after two doses of serum; the retraction of the head also lessened greatly. Five subsequent injections were given and all were followed in a few hours by elevation of temperature of from one to three degrees with increased restlessness and rigidity of the neck and occasionally vomiting. This case illustrates well the toxic action of excessive doses. A fall in leucocytes did not occur after the first injection, but was found after the second.

Case V.—James L., aged nine years, admitted under Dr. Lafleur, April 22nd, 1908.

The child was unconscious on admission. Early in the morning he vomited and complained of headache, and at 2 p.m. became unconscious.

Present condition.—A well developed and well nourished boy, unconscious but not insensitive. There is dorsal decubitus and some restless movements of the limbs, and he resists attempts at opening the eyes. There is photophobia and external squint of the left eye. Temperature 99⅖ at 10 p.m., 100⅘ at midnight; pulse at same hours 88 and 120. There is a small patch of herpes on the skin and a single small hæmorrhagic spot in the groin. The pupils are equal and active. The head is not retracted, but the neck is rigid, and attempts to bend the head

forward are resisted and cause groaning. Knee jerks cannot be elicited, the abdominal and epigastric and McCarthy reflexes are absent. Kernig's sign well marked; leucocytes 30,280.

Lumbar puncture and 20 c.c. of very turbid fluid obtained, which gave a profuse growth of a pure culture of meningococci. 22 c.c. of serum injected at 10.30 p.m.

April 23rd: At 2 a.m. the child regained consciousness, vomited and complained of pain in the head and neck; 10 a.m., quite conscious, temperature 100; strabismus and photophobia have disappeared. Kernig and rigidity of neck are unchanged. At 6 p.m. temperature 102⅗, falling to normal two hours later; leucocytes 28,960.

Lumbar puncture at 11 p.m. and 12 c.c. of turbid fluid removed, and 12 c.c. serum injected. He was restless on coming out of the chloroform, but slept five hours after ⅛ gr. morphia. The fluid withdrawn was sterile and also upon all subsequent occasions.

April 24th: Slight headache, rigidity of neck and Kernig's sign less marked; temperature not over 99⅖.

April 25th: Marked herpes of lower lip and chin.

April 28th: Temperature ranges from 99⅕ to 100⅕; pulse 64 to 80. There is very slight rigidity about the neck, but no pain on bending the head forward; leucocytes 11,460. Lumbar puncture and 32 c.c. of fluid withdrawn, and 20 c.c. of serum injected last night.

April 29th: Twelve hours after the injection temperature gradually rose to 102⅖, with headache, rigidity of neck and retraction of head.

May 5th: Temperature has been elevated daily, but fell this evening to 99⅕. Three further doses of serum were given.

Convalescence was satisfactory and he is, early in June, ready to leave the hospital.

Remarks.—In this case the serum was used on the first day of the disease and improvement apparently followed rapidly, consciousness returning in a few hours, the temperature falling to normal on the evening of the second day and the bacteria disappearing after the first injection. A relapse occurred, following a third dose of serum, but this feature is so frequently seen in untreated cases that it may have been a coincidence.

Summary.

Summarizing the five cases we find that four made an excellent recovery and one only was fatal. Rapid improvement followed the use of serum in four of the cases, the temperature and pulse falling and the other symptoms gradually lessening in severity. The bacteria rapidly diminished and disappeared after the injections. In four instances

bacteria were never found after the first dose of serum, although repeated examinations by cultures and smears were made. In the fatal case, complicated by hydrocephalus, the fluid from the first four punctures, taken on consecutive days, showed a rapidly decreasing number of bacteria, as shown by the growths of a constant quantity of spinal fluid on blood agar. Later, a reinfection of the membranes occurred, perhaps from the bacteria present in the hydrocephalic fluid.

Harvey Cushing records a case which dragged on for a couple of months with periods of fever (103 to 104°) during which there was stupor, severe headache and cervical retraction. Puncture revealed a large number of micrococci. After three injections of 15 c.c. each of serum the bacteria practically disappeared and rapid convalescence ensued. Flexner also records two cases in which the diplococci rapidly diminished and disappeared after the use of serum. This suppression of the diplococci corresponds with Flexner's experimental results. In guinea pigs and monkeys a rapid disappearance of the diplococci took place when they were brought into contact with the serum, and, as Flexner states: "While it is undoubtedly important to secure neutralization of the endo-toxin yielded by the diplococcus on disintegration, the effects of restraint of growth and multiplication of the diplococcus may, at some period of the disease, be of even greater significance."

The leucocyte count of the blood in our cases showed in several instances a remarkable fall after the injection, particularly the first. In *Case I.* they fell from 13,810 to 5,600 on the day following 30 c.c. of serum. They rose to 8,720 on the third day, twenty-four hours after 10 c.c. of serum, and 14,080 were present the day after the third dose; the number of colonies from the spinal fluid at the same time showed marked daily diminution. The leucocytes subsequently rose to 23,000 and 24,000, but as the condition was accompanied by a large collection of hydrocephalic fluid charged with diplococci this may have been responsible for the rise in the leucocyte count. In *Case II.* there was a similar but less marked relative fall from 21,800 to 13,350 on the day following the first injection and subsequently a slow diminution. In *Case IV.* the count was practically identical before, and twenty-four hours after, the first injection, but in another forty-eight hours they fell from 30,000 to 10,600. The fifth case also showed a fall, but, unfortunately, a daily count was not made.

It would thus appear that the use of the serum tends to lessen the number of leucocytes in the circulating blood, and we may therefore, perhaps, infer that the migration of leucocytes into the membranes is diminished.

In making the injection it is advisable to use a general anæsthetic. The fluid is warmed and injected slowly at the rate of 1 c.c. per half

minute. Following the operation shock was sometimes present, and it was considered advisable to use camphor or strychnine hypodermically. In addition to the serum the usual measures of treatment were adopted, and symptomatically considerable benefit was obtained by small doses of morphine and by warm baths.

Although the temperature usually falls after the first two or three doses of serum, yet its use, if persisted in, frequently produces some unfavourable symptom. After repeated doses there is frequently a rise of temperature in six to twelve hours amounting to two or three degrees, sometimes accompanied by increase of headache, greater rigidity of the neck and vomiting. In the fifth case a relapse came on the day following the use of the serum after it had been discontinued for four days, marked by a rise of temperature lasting for seven days, headache and retraction of the head. This may, of course, have been a coincidence, as this event is so frequently seen in the untreated disease.

It is not easy to lay down definite rules as to dosage. Flexner advises daily injections of serum for three or four days, in doses of not more than 30 c.c., and considers it advisable, but not essential, to withdraw at least this amount of fluid before injection. The early use of serum is more likely to be attended by success. Of our cases, one, in whom treatment was commenced on the first day, showed a remarkably rapid improvement, regaining consciousness in a few hours and the temperature falling to normal in twenty-four hours. In the other successful cases treatment was begun on or before the third day, whilst in the only fatal case the injection was given on the fifth day.

A single injection, according to some of the reported cases, seems to have been sufficient to control the disease, and in view of the toxic manifestations which appeared after repeated injections in some of our cases, we believe it is wise not to use the serum more frequently than necessary.

Besides the indications derived from temperature and pulse, daily bacteriological examinations are most helpful, and the presence of bacteria in the fluid would certainly appear to be an indication for the continuance of treatment.

Where mild symptoms persist, such as slight elevation of temperature, retraction of the head or Kernig's sign, we consider it safer to perform a simple puncture to relieve pressure rather than to continue the use of the serum with the risk of producing toxic symptoms.

In conclusion, we wish to express our obligation to Dr. Flexner for supplying the serum, and to Dr. Duval and his assistants, Drs. Lyman and Hillman, for carrying out the bacteriological work.

A CASE OF TUBAL PREGNANCY.

BY

A. Lapthorn Smith, B.A., M.D.,

Surgeon-in-Chief of the Samaritan Hospital; Gynæcologist to the Western Hospital; Gynæcologist to the Montreal Dispensary; Consulting Gynæcologist to the Women's Hospital; Fellow of the Munich Gynæcological Society.

While preparing a paper of forty operations for tubal pregnancy, with two deaths, I quoted a case, reported by the well known author, Dr. Henry C. Coe, of New York, of a woman whom he was called to curette for supposed miscarriage, and who, when he was in the middle of the operation, suddenly collapsed. He recognized that it was a tubal pregnancy, called the ambulance, went over to the large hospital on the next street, and had her abdomen opened and the artery tied within a quarter of an hour, and saved the woman's life. While I was writing this little story down from memory, my telephone rang, and one of my former pupils, Dr. Christie, asked me to curette a patient of his who had had a miscarriage a few days before, and who suffered a good deal from bearing down pains, which made him think that the placenta had not all come away. With Dr. Coe's case at the end of my pen it was quite natural that I should ask him if he was sure that it was not a tubal pregnancy. He thought not, but said I could make a good examination under ether before curetting, as she was so tender that he had not been able to examine her as well as he would like. Next morning I met Dr. Christie at her home, and when she was anæsthetized I was able to make a very thorough examination by the vagina and rectum. A mass could be felt very distinctly surrounding the uterus and pushing the latter over to the right. The rectum was quite empty and clean, so that the finger could be passed all around the boggy mass in Douglas' cul de sac. The uterus was not fixed as in pelvic peritonitis but was fairly movable.

I had no hesitation in making a diagnosis of tubal pregnancy and, instead of curetting, I called the ambulance and sent her to the hospital. The doctor gave me the following history: She had been married exactly one year, and had always been regular, the last period being on the 25th March, 1908. The period due on the 25th April did not come on; one week later, (2nd May) she began taking pennyroyal pills to bring on her periods. One week later, 9th May, she was flowing a good deal and had the bearing down feeling, but had never had any fainting spells. She was not pale, but was distended; her temperature was subnormal and her pulse was not over 90. She had never had any pain in the right side as long as she could remember, so that there was

very little to go upon, to say that she had either appendicitis or tubal pregnancy, and yet she had both. For on opening up at the Samaritan Hospital three hours later, and detaching the omentum and a few coils of adherent intestine, I came upon a quart of black clot in the midst of which a round mass was found as large as a walnut, which proved to be the ovum. After cleaning out the clot as much as possible without unduly prolonging the operation, the left tube and ovary were removed. The bleeding still being very free, a further search for its source proved it to be coming from a knuckle of small intestine at the bottom of Douglas cul de sac. This was carefully detached and brought out of the wound and found to be eaten more than half through over an area of two square inches. This came about in the following manner: the ovum was impregnated the day and the hour and the minute that it came out of the Graafian follicle on the 25th of April, but a kink in the tube prevented it from being carried any further than the fimbriated end. It began at once to send its suckers into the mucous membrane at the end of the tube, but in a day or two this area was too small to accommodate them all, and so they seized upon a neighbouring coil of intestine, and bored into its blood vessels. The latter, to save itself from perforation and the general peritoneal cavity from infection, rapidly took on phagocytic or defensive action, which at the same time thickened the wall of the intestine to a quarter of an inch and surrounded it with lymph, to wall the attacked part off from the rest of the peritoneal cavity. In a week the tiny ovum had grown to the size of a walnut and torn itself away from the fimbriated end of the tube depending on its rootlets in the intestine for its support. But the raw surface left in the tube began to bleed and this blood clotted. Although the passage in the tube was too constricted to allow the ovum to pass through it, it was large enough to allow a small stream of red serum to escape, and this was what came away from the uterus, making her and her doctor think that she had a miscarriage. But as no fœtus came away and she had a bearing down feeling, they very naturally thought it was a miscarriage with the ovum still retained. The real reason of the bearing down feeling came from the rectum, which felt the clot in Douglas' cul de sac pressing upon it, but could not say whether the pressure came from within or without. To come back to the operation; the thickened and bleeding coil of small intestine and the oozing omentum were wrapped up in hot towels and the cul de sac of Douglas packed with hot gauze sponges and the right tube was examined. It and the ovary were bound down by old and dense adhesions and were with difficulty brought up. One of the adhesions proved to be the appendix.

which was so adherent to the tube that it was difficult to say where one began and the other left off. They were removed in one piece. Before the operation I explained my views about what was best to be done about the ovaries to the husband, and he left the matter in my hands. My views are briefly, first, that tubal pregnancy is a malignant disease, almost always ending in death if not removed early; second, that it does not happen to healthy ovaries and tubes; there must first have been pelvic peritonitis in order to close or constrict one tube; third, that the left tube is generally attacked first, but a year or two later the same thing overtakes the other one, so that there are hundreds of cases recorded of a second running of the gauntlet for one's life and a second dangerous operation to save it. We should never knowingly expose a woman to a second laparotomy; I therefore think it best for her and for the reputation of surgery that whatever has to be done should be done once and for all; that is why I remove both ovaries and tubes. That is why I removed the appendix; that is why I sewed the uterus up to the abdominal wall and that is why I closed the incision with three layers of sutures. I feel reasonably sure that she will never have to have the abdomen opened again.

This was my forty-first operation for tubal pregnancy, of which the thirtieth and the thirty-eighth died. It is a week since the operation was performed and so far she has not had a bad symptom. She had no prolonged sterility, no irregular menstruation, no fainting spells, no history of previous attacks of appendicitis, no dyspennorrhœa; nothing to help a diagnosis, but a supposed miscarriage with a mass in Douglas' cul de sac pushing the uterus to the right. Had I not been writing a paper on the subject at the time I might have omitted a careful preliminary bimanual examination and have gone ahead with the curetting, and had a fatal internal hæmorrhage on the table. Her physician very truly said to me that it would be a terrible thing to open her abdomen and not find a tubal pregnancy, when I told him I was only ninety-five per cent. sure that it was; but I added if we were to wait until we were a hundred per cent. sure of what we would find we would wait until most of the women were dead. The time to operate is when you know that there is something requiring operation, and you *suspect* that that something is a tubal pregnancy.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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THE ANNUAL TYPHOID VISITATION.

The city of Montreal, like most other cities on the continent, suffers heavily from typhoid fever, and it behoves us to be on the lookout that every possible source of the disease be shut off as soon as it is recognized. This prevision has not always to be exercised most carefully within our own borders, as is exemplified by the state of affairs existent at the present moment. This summer there was a definite outbreak of typhoid fever in one of the villages on the shore of Lake St. Louis: we have reason to believe that it arose from a case on a milkman's farm; most of, if not all the cases were brought to Montreal as soon as they were recognized, and so they ceased to be dangerous. But by reason of the situation of the villages on Lake St. Louis, combined with the way in which the water and ice supply of Montreal are taken, a case carried to its termination in one of those villages may infect a large number of cases in this city, if the excreta are allowed to drain by the usual channels. As far as is known, no outbreak in the city has yet occurred, as a result of the above mentioned small epidemic. The lesson, however, is plain: it is that a case in one of those littoral villages is eminently dangerous to Montreal, unless its excretions are destroyed: at present, the onus of responsibility for this rests on the chance practitioner, or on someone, probably a summer resident, who has magisterial authority for the time being, in the municipality concerned. It is not quite fair

that this responsibility should be on the shoulders of anyone but an officer of the public health service. We presume that the health officers of the city have no jurisdiction there, and have abundance of work of their own to which to attend to. Again, we presume that the health of villages such as those on the Lake St. Louis shore, which have no health officers of their own, are in charge of the officers of the province. It would be well, we think, that the authorities of the province should be asked by the municipal authorities concerned, to exercise, during the summer months, an especially close observation upon places such as the villages on Lake St. Louis, which are so situated geographically, as to prove important to the health of a large city. A case of typhoid fever in Dorval, or Dixie, or Pointe Claire, or Beaconsfield, has opportunities for evil a hundred times more potent than a case in an inland village of the same size, because one such case might set up a hundred in Montreal. It is well when we can see these dangers in time to prevent them, instead of waiting for an epidemic to impress the lesson upon us, and we offer these suggestions as important for our future well-being.

NEW AUSPICES AT McGILL.

The seventy-seventh session of the Medical Faculty of McGill University opens this month under new and encouraging auspices, and the University is justified in looking forward with good hope to the work of the coming academic year.

Professor F. J. Shepherd was unanimously elected Dean, in succession to Professor T. G. Roddick, and has already assumed the direction of affairs. We need not refer to the popularity of this appointment, both among teachers and students, for it has long been recognized that the energy and enthusiasm which Dr. Shepherd has applied to the department of Anatomy would be well bestowed on the wider field of the college at large. There has been no time when these qualities were more necessary than the present, when the Faculty of Medicine is spreading out from the confinement of antagonistic circumstances. The new building, which will allow great expansion, has been commenced; our strong rival, the University of Toronto, adopts this year the five-year course, which will bring the two colleges upon an equality in the matter of choice exercised by the intending student, as far as length of course is concerned; best of all, the staff begin their work with the knowledge that strenuous and united work, such as that of the past collegiate year, can make headway against the most adverse circumstances. There is good authority for the state-

ment that stone walls do not make a prison, nor do they any more make a college, and enthusiasm and hard work in the coming year will continue to build up the university, so that when the buildings are complete they will but add a more fitting external appearance to the essential part—a live institution.

THE NEW DEAN.

The most notable event in the opening of the session is the presence of a new Dean. The applause at Convocation last June when the appointment of Dr. Shepherd as Dean of the Faculty of Medicine was announced, showed how acceptable it was not only to his confreres in the faculty, but also to the body of students generally. On no other member of the faculty could the mantle, we think, have fallen with such general approval. Professionally the new Dean is of the highest standing. He has earned a well merited continental reputation as an anatomist and as a surgeon. His museum of anatomy and comparative anatomy which he had collected, during the quarter of a century he presided over this department, was not only of great educational value, but contained examples of many rare abnormalities. Unfortunately it was almost entirely destroyed by the fire of last year. From the great Hebra he early acquired an interest in dermatology, and a few years ago was chosen to fill the position of president of the American Dermatological Society, of which, we believe, he was an original member, and at whose meetings he has been a frequent contributor. Two years ago Edinburgh honoured him with the honorary degree of LL.D. With the exception of one other member, who, we understand, declined the office, feeling unequal to its onerous duties, Dr. Shepherd is the senior member of the faculty, and has ever since his connexion with it taken an active interest in all its departments. When the late Dr. Craik resigned the deanship the faculty passed a resolution that the period of office should be limited to five years, but owing to the important work rendered necessary by the disastrous fire of April of last year, Dr. Roddick's tenure of office was prolonged for an additional year. In recommending Dr. Shepherd for the position the faculty, we understand, reasserted the limit of five years for this appointment.

THE TUBERCULOSIS EXHIBITION.

The tuberculosis exhibition will be held in Montreal, in the Arena, on November 3rd to 13th. The idea of the exhibition is to teach those who attend, in as graphic a way as possible, something about the disease, which may assist them in combatting or preventing it. The plan of

holding such exhibitions has proved a very useful one, and the League for the Prevention of Tuberculosis is entitled to all the encouragement and assistance that can be given them. Dr. Fraser Gurd has assumed the duties of secretary from the 1st of September until the exhibition, and from him any information that is required may be obtained. His present address is The Imperial Bank Building.

The exhibition is intended primarily to interest the laity, but will be of even greater interest to the medical men of the district. In order that the greatest possible benefit may arise from the undertaking, the co-operation of every physician is hoped for.

A collection of moderately complete statistics showing the incidence of this disease, death-rate, etc., is being prepared. The various methods for the handling of consumptives and the cure of consumption will be demonstrated. A fairly representative gathering of many of the most interesting speakers upon tuberculosis will be heard.

ADAMI'S PATHOLOGY.

We take advantage of the temporary absence from the editorial board of our colleague, Professor Adami, to offer him our good wishes and congratulations upon the publication of his "Principles of Pathology." During twelve years Professor Adami had laboured at this book, and we feel sure that it is vastly the better for the repeated and yet repeated mental overturnings to which many chapters have been subjected. Our purpose is not to laud Professor Adami beyond reasonable measure, but we feel sure that a milestone has been erected in the bibliography of pathology in the English language, and we are glad to have it the handiwork of our colleague and the product, in a sense, of our University.

The coming International Congress on Tuberculosis is a vast undertaking, consisting, as it does, of a three weeks session at Washington, beginning on September 21st.

The section work of the Congress will be done in the week September 28 to October 3. During that week there will be two general meetings.

During the three weeks September 21 to October 12, a tuberculosis exhibition will be open, and a course of special lectures by distinguished men will be in progress. Clinics and demonstrations of unusual interest will be arranged for the whole period.

List of Special Lectures.

In connection with the Congress, a series of special lectures will be delivered in Washington and elsewhere by eminent foreigners. The names of the speakers, and the cities in which they will lecture follow.

Bernard Bang, of Copenhagen; Washington, October 3. Subject: "Studies in Tuberculosis in Domestic Animals and what we may learn regarding Human Tuberculosis."

A. Calmette, of Lille, France; Philadelphia, September 26. Subject: "Les nouveaux procédés de diagnostique précoce de la Tuberculose."

Emil Coni, of Buenos Ayres; Washington, October 2. Subject: "La Lucha contra Tuberculosis en la Republica Argentina."

Arthur Newsholme, of Brighton; Washington, September 29. Subject: "The causes which have led to the past decline in the death-rate from Tuberculosis and the light thrown by this history on Preventive action for the future."

Gotthold Pannwitz, of Berlin; Philadelphia, September 23. Subject: "Social life and Tuberculosis."

R. W. Philip, of Edinburgh; Boston, October 6. Subject: "The Anti-tuberculosis Programme-Co-ordination of Preventive Measures."

C. H. Spronck, of Utrecht; Boston, October 7.

Andres Martinez Vargas, of Barcelona; New York, October 9. Subject: "Tuberculosis of the Heart, Blood and Lymph Vessels."

Theodore Williams, of London; Philadelphia, September 25. Subject: "The Evolution of the Treatment of Pulmonary Tuberculosis."

Dr. Maurice Letulle and M. Augustin Rey (joint lecture), Washington, September 30. Subject: "La lutte contre la Tuberculose dans les grandes villes par l'Habitation; méthodes scientifiques modernes pour sa construction."

Dr. L. Landouzy, of Paris; Baltimore, October 5.

Dr. A. A. Wladimiroff, of St. Petersburg; Washington, September 28. Subject: "Biology of the Bacillus."

Prof. N. Ph. Tendeloo, of Leiden. Subject: "Collateral Tuberculosis Inflammation."

The exhibition will assemble illustrative materials from all parts of the civilized world. Members of the Congress will find many opportunities to acquire or to increase, by exchange or otherwise, a valuable collection of illustrative objects. Literature forms an important part of many exhibits, and much of this literature can be had on the spot, for the asking, or will be sent, on written request, to any address.

The papers announced in the official program will be printed in advance, and will be distributed on the day of their presentation. They will be printed in German, French, Spanish and English. The proceedings of the Congress will be carefully edited and will be published within three months after adjournment.

The section proceedings, with the special lectures, the discussions, and an account of the exhibition, will make four substantial volumes, about 2,000 pages.

There are two classes of members: Active members pay a fee of five dollars, and they receive, besides the ordinary privileges of membership, the full set of published transactions without extra charge. Associate members pay a fee of two dollars. They do not receive the published transactions, or vote in the Congress. They receive the official badge, the printed matter distributed during the Congress and at the exhibition; they share in the entertainments, attend the meetings, clinics, demonstrations, etc., and have the benfit of special transportation and hotel rates.

The sections beginning work on September 28th, are seven in number: Section I, Chairman, Dr. William H. Welch, Pathology and Bacteriology; Section II, Chairman, Dr. Vincent Y. Bowditch, Clinical Study and Therapy of Tuberculosis; Section III, Chairman, Dr. Charles H. Mayo, Surgery and Orthopedics; Section IV, Chairman, Dr. Abraham Jacobi, Tuberculosis in Children; Section V, Chairman, Mr. Edward T. Devine, Hygienic, Social, Industrial and Economic Aspects of Tuberculosis; Section VI, Chairman, Surgeon-General Walter Wyman, State and Municipal control of Tuberculosis; Section VII, Chairman, Dr. Leonard Pearson, Tuberculosis in Animals, and its relation to Man.

President Roosevelt has accepted the Presidency of the Congress, and a thoroughly international, as well as national response will undoubtedly be the outcome of the untiring efforts of the committees in charge.

Reviews and Notices of Books.

THE NATURAL HISTORY OF CANCER, with special reference to its causation and prevention, by W. Roger Williams, Fellow of the Royal College of Surgeons, New York. William Wood and Company, 1908. Price $5.00 net.

Mr. Williams has long been known as having a mission regarding the debated questions of cancer, and his numerous writings are well known; he favours the view that cancer is the outcome of over-nutrition,—perhaps the expression "gross-feeding" is even more applicable, and that the meat-eating nations, and the most luxuriously fed parts of those nations are most liable. To write fairly upon cancer, when one has a decided leaning to one theory rather than to another, at a time when the apparent facts are chaotic, is a difficult task; but one must not for

a moment charge Mr. Williams with having done his task in any but a quite well-balanced and fair way. It is not just to him, to think that we have here the work of an enthusiast who is advancing his own views in a partisan way, for Mr. Williams' book is at once particular, as to his own view, and catholic as to the facts. He approaches all the questions upon a broad biological basis, and with a remarkable command of the literature.

The result is that one has an excellent dissertation upon the biological facts, and a full series of statistics with their interpretations, embodied in a style that is easy and clear. When one has read the book, knowing the author's strong views, one is surprised at the reasonable way in which he has subjected theory, even his own theory, to a dispassionate review of the facts.

The author, now as previously, tends to support a broadened modification of Cohneim's rest theory; at the same time his views of the inherent power of growth, and the relationship of tumor growth to hyperplasia of inflammatory and of other origins, are essentially sound. We venture to think that Mr. Williams lays too great stress upon the microbic school of investigators, whom he strongly combats, but his chapter upon the bibliography of the supporters of this school of thought is very interesting. It is very pleasant to find an author who makes use of such wide biological illustration for his purposes, for in the auxiliary sciences of zoology and botany Mr. Williams is at home. In the discussion of each subdivision of the subject, his own view upon the question in hand is briefly and inobtrusively, but definitely stated.

We can heartily recommend this book to all who are interested in the subject of cancer, for agreeing or disagreeing with the author's particular views, the reader will find in it a very comprehensive statement of the mass of information now at our disposal regarding the cancer problem. The volume is light, the type clear and the index full.

MODERN MEDICINE, Its Theory and Practice, in original contributions by American and Foreign authors. Edited by WILLIAM OSLER, M.D., Regius Professor of Medicine in Oxford University, England, assisted by THOMAS MCCRAE, M.D., Fellow of the Royal College of Physicians, London. Vol. IV. Diseases of the Circulatory System. Diseases of the Blood. Diseases of the Spleen, Thymus and Lymph-glands. Illustrated. Philadelphia and New York, Lea and Febiger, 1908.

This volume is devoted to the diseases of the circulatory system, the blood, the spleen, the thymus and lymph-glands.

The greater part of the work is occupied by the affections of the circu-

latory system. The writers in this section are to be congratulated on having produced a series of articles of a high scientific and literary character, and in the comparatively limited space of 569 pages the student of cardiac pathology will find both the older and newer views on this subject fully and clearly stated.

An excellent and thoughtful article is contributed by Hoover on general considerations in cardio-vascular disease. Although giving full credit to the myogenic theory of the cardiac functions he refers to the importance of the neurogenic theory. The only fault we can find in this article is its compression into forty pages, only allowing of a very brief discussion of some of the obscure problems in connection with the normal and abnormal movements of the heart.

Babcock's chapter on myocarditis, a somewhat difficult subject to treat in a systematic article, is skilfully handled. The writer lays some stress on chronic infective processes, e.g. cholecystitis and appendicitis, as a cause of myocardial disease. The section devoted to treatment, whilst recognizing the limitations of the subject, is judicious and helpful.

The articles on acute endocarditis, valvular lesions, diseases of the arteries and aneurysm, are contributed by the distinguished editor. In the chapter on endocarditis, although the different types of disease are clearly dealt with, there is no attempt to divide the different forms into sharply divided classes, a method of treatment which must commend itself to both the clinician and the pathologist. The tonsils are regarded as the point of entry for micro-organisms infecting the valves in a large number of cases of rheumatic or obscure origin. Reference is made to malignant types of endocarditis with little or no fever. The chapter on valvular disease, written in conjunction with Gibson, is an admirable one, and the portion dealing with treatment is particularly valuable; the remarks on digitalis should clear away the confusion which even yet clings to the indications for the administration of this drug.

Dr. Maude Abbott's article on congenital cardiac disease is one of the best in the book, and obviously represents an enormous amount of painstaking research. Its value to future students of this subject is greatly enhanced by a full bibliography, a feature which, we regret to see, is omitted by many other contributors. Another Canadian physician, McPhedran, contributes the article on pericarditis; his treatment of the subject is full and clear and well repays perusal. Other chapters on the heart, on hypertrophy and on insufficiency and dilatation, by Gibson, on functional disease of the heart by Hoover, on thrombosis, embolism and phlebitis, by Beemer, and diseases of the lymphatic vessels by Warthin, conclude this portion of the work.

The sections on the anæmias and leukæmias are written by Cabot, and form an authoritative presentation of existing knowledge on these subjects. The article on pernicious anæmia is based on an analysis of 1,200 cases of which 337 have come under the personal observation of the writer. The etiological factor of the disease is regarded as a toxin, probably generated in the hæmopoietic organs. The severe anæmias of pregnancy, of recurring hæmorrhages and of syphilis are regarded as secondary, and are to be distinguished as a rule from the primary form. Cases in which a small carcinomatous growth of the stomach has been found at autopsy are looked upon as an accidental complication, if the blood characters correspond with pernicious anæmia, the anæmia due to gastric cancer usually presenting the characters found in a secondary anæmia. The writer, we believe rightly, lays but little stress on Hunter's views on oral sepsis as an etiological factor.

That chlorosis is becoming a much less common malady than it was ten years ago, is a statement we do not recollect having seen in print before. The statistics given on this point are convincing, and we believe they apply in this city quite as much as in the centres from which the returns were obtained.

Purpura and hæmophilia are fully and adequately dealt with by Pratt, as are diseases of the spleen by Lyon. An excellent description of the thymus and lymph-glands by Warthin concludes the volume. The cases now so frequently recognized of sudden death associated with enlarged thymus are attributed to mechanical pressure on the trachea. The author refers to the narrow upper opening of the thorax in support of this view. He also believes that temporary enlargement of the organ occurs which may escape notice at autopsy. Many fatal cases of "cramps" while swimming are also regarded as of thymic origin. Recognition of the enlarged thymus is materially assisted by radiography, and the appearance is illustrated by an excellent plate.

We can cordially recommend this volume as a standard work of reference, and one which will prove of real assistance to the practitioner in his daily work. F.G.F.

A Text-Book of the Diseases of the Nose and Throat. By D. Braden Kyle, A.M., M.D., Professor of Laryngology and Rhinology, Jefferson Medical College. Consulting Laryngologist, Rhinologist, and Otologist, St. Agnes's Hospital, Fellow of the American Laryngological Association, etc., with 219 illustrations, 26 of them in colours, 4th edition, thoroughly revised and enlarged. Publishers, W. B. Saunders Company, 1907.

The earlier editions of this work have been previously reviewed in this

journal, and we shall therefore simply refer to some of the more interesting features. The author states in the preface of this edition, that the work has been thoroughly revised, and many new chapters have been added. The chapter devoted to the deformities of the nasal septum has been ably dealt with. J. A. White's ingenious operation for the correction of saddle back deformities of the nose has been minutely described and illustrated.

We heartily agree with the writer upon the advisability of conservatism in dealing with the accessory nasal chambers, but Killian's operation for the radical cure of chronic frontal sinusitis has not been described, an omission one would hardly expect to find in a work otherwise so complete. That portion of the book devoted to bronchoscopy is one of the many new chapters added. The principles involved and the technic used can, as the author states, be applied also to laryngoscopy, laryngobronchoscopy, tracheoscopy, oesophagoscopy, gastroscopy, and possibly magnetism. The technic of this work has been described by Chevalier Jackson, and needs no further comment.

The chapters devoted to voice, speech, defects of speech, and relation of voice to hearing, make very interesting and instructive reading.

The writer acknowledges that he has quoted verbatim in many instances from well known writers, yet I venture to think this in no way detracts from the work, but rather enhances its value, which is stamped with Kyle's good judgment and personality.

The publishers have done their work well. The print is good and the illustrations are excellent. We therefore recommend this book to those who are interested in nose and throat work. R.H.C.

STUDIES FROM INSTITUTE FOR MEDICAL RESEARCH, Federated Malay States. Vol. 3, part 3. Breeding Grounds of Culicidæ, by C. W. Daniels, M.B., Camb., M.R.C.S. (England), Director of the Institute for Medical Research, Federated Malay States; The Culicidæ of Malaya, by G. F. Leicester, M.B., C.M., Edinburgh, Assistant in the Institute for Medical Research, Federated Malay States, Singapore. Kelly and Walsh, Limited, Printers. Published by the Federated Malay States Government, 1908. Price 7s. 6d.

This is a technical catalogue with anatomical descriptions and remarks of general interest from an entomological standpoint upon the culicidæ of the localities above mentioned. Its application is distinctly limited, but inspection of the volume permits the reviewer to point out

how admirable such contributions to science are, especially as denoting the interest of the Government of the Malay States in original work.

MEDICAL EXAMINATION QUESTIONS, set at the University of Edinburgh, the Conjoint Board of the Royal College of Surgeons, Edinburgh, the Royal College of Physicians, Edinburgh, and Faculty of Physicians and Surgeons, Glasgow, for several years. Edinburgh: John Currie, 1908. Price 2s. net.

This is a little volume of 230 pages, which consists of the papers set at the various examinations in Scotland for the past few years There is no attempt at comment nor answer, but the student who is concerned will be glad to find a large number of papers collected in a convenient form.

PHYSICAL SIGNS OF DISEASES OF THE THORAX AND ABDOMEN, by James E. H. Sawyer, M.A., M.D., Oxon., M.R.C.P., London, Casualty Assistant Physician and Medical Registrar, the General Hospital, and Physician to out-patients, the Children's Hospital, Birmingham, London. Baillière, Tindall and Cox, 8, Henrietta street, Covent Garden, 1908. Canadian agents, J. A. Carveth and Co., Toronto, Ontario. Price $1.50.

This book, covering space that has been thoroughly written over before, fulfils its promise, which is that it is a book suitable for students. It deals with the simpler manifestations of the chief methods of examination; and the main points in differential diagnosis are dealt with more than is usual in books of this scope. There are twenty illustrations drawn by the author: of these, the ones on pages 20 and 23 have rather too much detail crowded into them, and the cardiac clock on page 88 seems to us scarcely obvious enough to one who is not quite conversant with the cardiac sounds. Coupled with this very mild criticism, we make the statement that the book is useful, the diction clear, and the making of the volume good.

CONSUMPTION: HOW TO PREVENT IT AND HOW TO LIVE WITH IT. Its nature, causes, prevention, and the mode of life, climate, exercise, food, and clothing necessary for its cure. By N. S. Davis, A. M., M.D., Professor of Principles and Practice of Medicine, Northwestern University Medical School, Chicago; Physician to Mercy and Wesley Hospitals. Second edition, thoroughly revised. 12mo. 172 pages. Bound in extra cloth. Price, $1.00, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

Dr. Davis' book was first published, if we mistake not, seventeen years ago, since which time it has been often reprinted, but not revised. The

present reconstruction consists in additions and modifications, which render it better adapted to present day needs; such an addition is the chapter on sanitariums. The book is sane and sensible; it deals with the various questions of treatment in a brief, decisive way, and where required, there is good emphasis laid upon points that require to be emphasized. There are many books upon this subject, and there is need for them all: we can cheerfully recommend Dr. Davis' book as worthy of a place among the good ones.

The Extra Pharmacopoeia, revised by W. Harrison Martindale, Ph.D., F. C. S., and W. Wynn Westcott, M. B. Lond., D.P.H. H.M's. coroner for north-east London. Thirteenth edition, London. H. K. Lewis, 136, Gower street, W.C., 1908. XL+1163 pages, med. 24-mo. Price 10s. 6d. net.

We have had occasion frequently to review the earlier editions of this book, and always with commendation; the book becomes a bigger compendium of knowledge in a smaller space with each successive publication; let it suffice to say that the present edition, a thinner volume than the 12th edition, contains 128 pages more, and the authors may be forgiven if they point with pride to the fact that while the 1st edition 1883 contained 1,600 items in the index, the present contains 10,000. The preface contains comments upon additions of interest. We note that Fuller's earth is in disfavour, because of the possibility of its causing tetanus; also that tartaric acid of British manufacture is uniformly free from arsenical contamination. The paragraph on Patent Medicines contains some items of interest, such as this, that Munyon's Blood Cure and Munyon's Kidney Cure on quantitative examination, contain 100% of sugar. Mrs. Terry's Drink Cure contains only 98% of sugar, and 2% sodium chloride. These, however, are merely noted in passing; there is scarcely a page in the whole book that has not some fact of practical interest, and the 13th edition is thoroughly to be commended, not only as a pharmacopœial compend, but also as conveying a great deal of useful and up-to-date information in many departments of scientific medicine.

Treatment of Gonorrhoea in the Male. By Charles Leedham-Green, M.B., F.R.S., Surgeon to Queens Hospital, Birmingham, Surgeon to Birmingham and Midland Hospital for Children, Consulting Surgeon to Birmingham General Dispensary. Second Edition, London, Baillière, Tindall and Cox. J. A. Carveth and Co., Ltd., Canadian Agents, Toronto, 155 pp. Price $1.50.

The first edition of this small but well-known work is but two years old. To those who are acquainted with it, it is not surprising that a call

for a second edition has followed so quickly. In view of the countless pages yearly devoted to gonorrhœa and its treatment, one might have expected that the sum total of what is new in the last two years would have caused a more considerable alteration in the first edition. This has been unnecessary, and the additions and alterations are few but important. They include a description of Goldschmidt's new urethroscope which is the first published in an English text book of this ingenious instrument, and a brief description of Bier's hyperæmia as applied to gonorrhœal arthritis. The use of vaccines as applied to the more chronic forms of gonorrhœal infection, especially of joints, might perhaps have received more extensive treatment, but the book is eminently conservative and practical.

In the first part, which is devoted to urethritis, its pathology and treatment, and includes a short and clear presentation of the anatomy and physiology of the bladder and urethra, we are glad to find a short account of Mr. Leedham-Green's views on the sequence of the act of micturition as compared with Finger's. Mr. Leedham-Green's experiments in this respect have practically disproved Finger's views, views which long governed the mind of the genito-urinary surgeon.

The second part is devoted to the complications of gonorrhœa and calls for no special remark beyond the fact that the author expresses himself as a firm believer in gonorrhœal pyelitis, though unable to prove his point. The final chapter—the proof of the cure of gonorrhœa and its bearing in marriage—is a highly important one. The author strongly believes in the prolonged infectiousness of this disease.

The book is short, clear, eminently precise and practical though not abounding in prescriptions. It presents the latest views on the bacteriology, pathology and treatment of this wide-spread disease and of its complications, as very few books known to us do. To those who have suffered from the teaching of the ordinary text book of surgery, as most have, in short to all, the book is to be thoroughly recommended.

R. P. C.

Medical News.

In the *Journal A. M. A.*, Aug. 15, 1908, the annual Educational number, are presented statistics of medical colleges, students and graduates for the year ending June 30, 1908. There were 22,602 students studying medicine last year, the lowest number in fifteen years. These are divided into 20,936 in the regular schools, 891 in the homeopathic

schools, 479 in the eclectic, 90 in the physio-medical and 206 in nondescript or unclassifiable schools. For the homeopathic and eclectic schools the totals are the lowest since 1880.

There were 4,741 medical graduates last year, likewise the lowest number in fifteen years. The regular schools had 4,370; the homeopathic, 215; the eclectic, 116; the physiomedical, 12, and the nondescript colleges, 28. The homeopathic schools have the lowest number since 1880 and the eclectic schools the lowest since 1900.

There are 9 less colleges than in 1907, the total now being 152, consisting of 123 regular, 16 homeopathic, 8 eclectic, 2 physiomedical and 3 nondescript or unclassifiable schools.

Women students constitute 3.7 per cent. of all students, about the same proportion as last year. Statistics show that college terms are being gradually lengthened.

Tabulated statistics of medical students and graduates for the past eight years show the average percentage of graduates to the total matriculants was 20.4 instead of 25 (one class of four). Four colleges, however, graduated on an average over 30 per cent. of all their matriculants.

A list is published showing that 374 medical colleges organized in the United States have ceased to exist under their original titles, some becoming extinct, some having merged into others, and some taking new titles. A portion of these were fraudulent institutions.

Of the 152 existing colleges, 13 now require one or more years of work in a college of liberal arts for admission, and 40 others have voted to establish this requirement in 1910 or before. Five state examining boards have established the requirement for preliminary education of one year's work in a college of liberal arts, which applies to all beginning the study of medicine in the session of 1908-9 and thereafter.

Retrospect of Current Literature.

MEDICINE.

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON, AND HOWARD

S. Flexner and J. W. Jobling. "Antimeningococcic Serum." *Jour. A. M. A.* July 25, 1908.

The authors have tabulated 357 cases of epidemic cerebrospinal meningitis treated with the antimeningococcic serum, taking account of all the leading features, all having been diagnosed bacteriologically as well as by the usual clinical tests. Forty-three moribund patients

or fulminant cases, in which the patients survived the first serum injection less than 24 hours were excluded from the tabulation. Under one year of age the recoveries were 50 per cent. and the ratio rapidly increased with the age, being 92 per cent. in patients between 5 and 10 years of age. Above that it again fell to 67.9 per cent. in those over 20, which is accounted for in part by the fact that a large number of these were treated by scattered physicians who had had little experience with the serum. Wherever a series of cases have been treated by one observer, the recovery rate at this age has been high. The histories were sufficiently explicit in 328 cases to show approximately the period of the disease when the injections were begun. In 121 patients injected between the first and third days, there were 103 recoveries (88.1 per cent.); in 100 first treated between the fourth and seventh days, 78 recoveries (78 per cent.); in 107 treated only after the seventh day 68 recovered (63.6 per cent). The benefit of early injection is clearly shown, but the authors think the outlook for later cases is still encouraging with the treatment. In 207 cases the histories were sufficiently definite as regards the mode of termination of the disease to show that 201 terminated by lysis, and 69 by crisis. The average duration of active symptoms in the 220 cases where it could be ascertained was about eleven days. This later study has confirmed the former observations of the rapid decrease of the diplococci under the influence of the injections, the lessened turbidity of the meningeal exudate and the decreased leucocytosis in favourable cases. This series of observations also shows, like the earlier ones, that in the great majority of the cases, the recovery after the serum treatment is complete.

Henry Koplik, M.D. "Congenital Pyloric Spasm and Congenital Hypertrophic Stenosis of the Pylorus in Infancy." *American Journal of the Medical Sciences,* July, 1908.

This condition has of late years aroused increasing interest, and is no longer to be classed among the very rare disorders of infancy. Its history is briefly reviewed, and an attempt made to explain the confusing difference of opinion as to the nature of the disturbance. Is it a spasm of the pylorus, or hypertrophy with stenosis, or both? The controversy in some quarters has been actually bitter. Koplik, in this paper, gives the results of his observations, reporting in some detail and critically analyzing the fifteen cases which have come under his care. He takes the stand that the condition may be either spasm or hypertrophy, and that it is not very difficult to distinguish between the two. Their differential diagnosis he gives as follows: "In simple spasm there is the persistent and full vomiting; the retentive vomiting present in the

cases of hypertrophic stenosis; there is also the steady emaciation and the constipation. There may be no peristalsis, and the pylorus, if palpable at all, is felt only as a small contracted nodule, not as hard or large as in the cases of hypertrophic stenosis. There are also, once or twice daily, stools which contain a certain amount of milk feces. In hypertrophic stenosis all the symptoms are present to an aggravated extent, but in addition there is marked and disordered peristalsis visible on the abdominal surface. This peristalsis is generally in one direction, toward the pylorus, which, in a great number of cases, is distinctly palpable. The constipation is more inordinate, and the stools show little or no milk feces, only bile-stained mucus."

Eleven of his fifteen cases he ascribes to simple spasm of the pylorus. They all got well without surgical interference, some of them after months of persistent vomiting and extreme emaciation. The sudden cessation of the vomiting observed in many cases, when after many trials, a form of food appropriate to the individual case is finally found, speaks strongly for spasm as against organic stenosis.

Of the four cases of hypertrophic stenosis, two were operated on, one of which recovered, the other died after a secondary operation for complicating mastoiditis. Another died suddenly after being under observation only one day. The fourth slowly recovered after the surgeon had refused operation on account of the weak condition of the patient.

Three of his cases after apparent recovery have shown disquieting late effects. One gradually developed the most severe rickets, while the two others, in their second and third years, are beginning to show an intolerance of solid food, with pain and vomiting. One of these latter was the case of stenosis successfully operated on, and the present symptoms would point to a narrowing of the artificial opening in the stomach.

As to treatment, the majority even of stenosis cases, in view of the high mortality in cases operated on (50 to 75 per cent.), have a better chance without operation. All forms of feeding should be tried, from one or more wet-nurses, down through the long list of artificial methods, scientific and otherwise, if necessary, till the tolerated food is found. Mixtures containing the minimum of fat are probably the best, in any case small amounts at longer or shorter intervals. Local applications do good. Stomach washing is useless and often exhausting. Small enemas of salt solution help to maintain nutrition. Opiates, citrate of sodium, and pancreatin, at best give but temporary benefit.

The prognosis in all cases of simple spasm is good. If there are one or two stools daily containing milk feces, one can generally feel that the ultimate outcome will be favourable. W. W. F.

PATHOLOGY.

UNDER THE CHARGE OF DRS. ADAMI, KLOTZ, DUVAL, AND NICHOLLS.

E. D. Telford, "On Hydrocele in Children." *Med. Chronicle,* 1908 XLVIII, p. 73.

The subject of hydrocele in childhood is quite inseparable from that of hernia, since both are conditions resulting from the delayed or incomplete closure of the processus vaginalis. The imperfect closure of the processus vaginalis renders the child the victim of a potential or actual hernia or hydrocele. The various types of hydrocele result from the nature of the closing of the peritoneal sac. A reduced hernia is often followed by a hydrocele. Only two per cent of cases occur in females, of fifty cases 14 were bilateral, and of the remaining, 22 were on the right, and fourteen on the left. In 14 cases the hydrocele was present at birth. The partial funicular type is the commonest. However, this funicular hydrocele is often not in communication with the abdominal cavity. Occasionally the fluid in the processus vaginalis is due to other causes, such as tuberculosis.

Mandlebaum. "The Staining of Living Spirochaetes." *Munch. Med. Wochen,* 1907, November.

A drop of serum from a primary sore is mixed with a small quantity of Lœffler's methylen blue and a drop of 10% saline solution. The mixture is prepared into a hanging-drop specimen, and examined with the oil immersion. At the margin of the hanging-drop the spirocheta pallida can be distinguished in the stained and living state, and may be differentiated from the S. refringens by its paler colour. The organisms show motility for 24 hours. By this method the characters of the movements of the organisms may be studied.

Bab. "Bacteriology of Congenital Syphilis." *Munch. Med. Wochen,* 1907, November.

The author gives a bacteriological report on 50 cases of congenital syphilis. In these he was able to demonstrate the S. pallida in some organ or organs, or else the product of these organisms was found. The interesting feature noted was that the quantitative distribution of the spirochetæ varied in the different cases. Whereas in many the liver and spleen contained innumerable organisms, in other cases few or no spirochetæ were found here, but were present in the ovary or testicle. In several cases organisms were not to be found in any of the organs, and he gives various theories to account for their absence. It may be that in some instances the toxin alone finds its way from the maternal

tissues, and that the living organism itself never reaches the fœtus. These cases in which no spirochetæ were found were demonstrated to be true syphilis by the presence of the specific antibodies.

Lochlein. "Three Cases of Primary Cancer of the Liver." *Ziegler's Beitrag zur Path.*, 1907, XLII Heft, 3.

Much doubt is often thrown on the reports of primary cancer of the liver. The author brings forward three well studied cases, which have been examined in detail microscopically. The characters of his cases are as follows: Case I—Tubular adeno-carcinoma, arising from the epithelium of the fine bile passages, without cirrhosis of the liver. Case II.—Primary cancer of the liver, beginning in the liver cells themselves. In the liver elsewhere there was extensive hæmachromatosis and cirrhosis. Case III.—Primary cancer of the liver tissue complicating echinococcus cysts of the liver. The author concludes that primary cancers of the liver may arise from the finer bile ducts, or from the liver cells proper. In two of the three reported cases, it appears that the malignant growth developed upon a normal regeneration of liver tissue. In the regeneration of liver parenchyma or of bile capillaries, the actively growing cells, it may be, acquire a malignant nature in the unlimited power of growth.

Babes. "The Occurrence of Fat in the Interstitial Tissue of the Kidney and in the Renal Vessels." *Cent. f. Path.* 1908, XIX, p. 275.

Tissues were examined with scharlachrot. Amyloid degeneration of the renal vessels shows within its substance fine granules of fat, while this substance is absent from amyloid degeneration in the other organs. Fat drops are found in the renal arteries in cases of generalized arteriosclerosis or atheroma. In these cases the renal arteries may not be affected in disease. Diseased renal cases which become thrombosed often present much fatty degeneration in the thrombus. Sometimes the fatty endothelial cells of diseased renal arteries are swept away to form fatty thrombi in the smaller vessels. In thrombosis of the arteria afferens the glomerulus undergoes a fatty change, affecting mainly the epithelial lining of the capsule. With the destruction of the epithelial cells, fat-droplets are left behind. This may also occur in the lumina of the glomerular capillaries, where the endothelial cells show fatty degeneration. Fat is more rarely found in the veins and capillaries, occurring, however, in processes of infarction and necrosis of the kidney tissue. Occasionally leucocytes loaded with fat-droplets wander into the interstitial tissue in sufficient numbers to deposit evident quantities of fat.

GLASERFELD. "Calcium in the Cortical Vessels of the Kidney in Children." V.A., 1907, 188, H1.

Author examined 70 cases in children up to two years of age. In thirty of these he demonstrated cylindrical masses lying parallel to and of about the same size as the tubules of the intermediate zone. These cylinders gave the chemical reaction for calcium phosphate. Calcium carbonate was only demonstrated twice. In sections the calcium was shown to lie within the arteriae intertubulares and the vasa afferentia. Never was the calcium found in the kidney tissue proper. Neither the age of the child nor the character of the disease processes elsewhere had any influence on the calcium deposit. The author believes that rickets may have some association with the arterial changes. All cases over eight months old had rickets O. K.

PHYSIOLOGY.

UNDER THE CHARGE OF DRS. MILLS AND MORROW.

The bulk of the papers appearing in the English and American journals for the past year have been chemical and physico-chemical in character: one might safely say, two thirds of the work is of this nature, an indication of the present drift of physiological investigation.

The subject of metabolism naturally takes a large place, mainly approached, however, from the standpoint of the composition of individual intermediate and end products.

Electro-chemistry also has absorbed a large share of the attention of investigators, and closely connected with this subject comes the inquiry into the effect upon the body tissues of different chemical environment.

The cause of the heart beat, as heretofore, is a very live subject, and especially among American writers, has occupied a foremost position.

Work on respiration has come chiefly under two heads. (1) The behaviour of the centre under altered vascular conditions, and (2) Analysis of air.

Perhaps none of the work done can be looked upon as epoch-making, but much of it has shown a great deal of industry and attention to details. One cannot touch on the subject of physiology in the year 1907-1908, without mention of Sir Michael Foster, who died somewhat more than a year ago, on Mar. 25th, 1907, at the age of 71.

He was truly a scientific man who, though first among his equals as a physiologist, was so catholic in his view that every department of science claimed his interest and his energy. Nor were his energies confined to his laboratory or his lecture room, for he served his country as a mem-

ber of the Royal Commission on Vaccination in 1889, on sewage disposal 1898, and on tuberculosis 1901, was a commissioner of London University, served on the committee of the War Office on military education, was a member of the Royal Society for 35 years and secretary for 21 years.

He represented London University in Parliament from 1900 to 1905 as a Unionist, but voted with the opposition on the Education Act.

He taught physiology in London from 1867 to 1870, when he was called to Trinity College, Cambridge, where he remained until his death.

Though himself the author of a number of original investigations, it was chiefly as a sound and broad reasoner that he excelled.

To us he is known most kindly as the author of his "Text Book of Physiology," the English medical classic of the generation; a source of delight as well as of profit, from which no seeker need ever go empty away.

He was also the first and a constant editor of the Journal of Physiology, and the author of "A History of Physiology," which is also a history of the development of scientific medicine, written with the same charm and grace that mark his "Text Book." In Michael Foster's death, physiology and medicine and science and citizenship lost a man who advanced and graced them all.

We shall take up in sections a very few of the papers which have appeared to be of more general interest.

In the work on the *Heart*, Matthews and Jackson (*Am. Journ. Phys.* Jan. 1907) investigated the effect of magnesium sulphate on heart muscle.

Dropping solution of mag. sulph. on the excised frog's heart, led to blocking of the systolic impulse, the ventricular beat ceasing before the auricular.

After complete stoppage, mechanical stimulation could still elicit beats. The heart was reduced to the condition of skeletal muscle. The same result followed in atropinized hearts, showing it was not a vagus effect. These results were confirmed upon dogs' hearts.

A paper of considerable interest by Carlson and Meek, appeared in the Am. J. Phy. for Feb. 1908.

Carlson has done considerable work on the heart of the King Crab, which throws some light upon the muscle and nerve battle for the control of the cardiac rhythm. He has shown previously that the heart of *Limulus* loses its power to beat and to conduct beats, if separated from its dorsal nerve cord, this piece of work going far to strengthen the hands of the neurogenic school.

In the present article he takes up the developmental aspects of the question, and by examining a series of limulus eggs, he finds that distinct

rhythm appears in the heart, then a median tube, without muscular striation, at the 23rd day; but in no case is there any difference of the dorsal nerve cord until the 29th to 33rd day.

His explanation, which does not seem convincing, is that there is a transference of automatism and conductivity from myocardium to nervous tissue at some stage in embryonic development. But this embryological evidence in favour of the myogenic theory does not cause him to recede from his position that in limulus at any rate, the heart rhythm is primarily nervous in origin.

Two papers by G. N. Stewart upon certain phases of the bulbar centres are worthy of note.

One paper in Am. J. Phy. Aug. 1, 1907, by Stewart and Pike, approaches the essential character of the bulbar centres by the method of vascular occlusion and subsequent release; their idea being that by this method complete isolation of the centres from external influences may be secured.

In general, the technique was as follows:—After isolating the brachial plexus and the vagus trunks, these were stimulated and the results recorded by blood pressure and respiratory tracings. The cerebral arteries were then temporarily ligated and the afferent nerves again stimulated. Following release of the ligature stimulation was again done.

The Respiratory Centre. They found that after occlusion of the arteries to the brain the respiratory movements ceased in from ½ to 3 minutes; following this quiescent period came a few irregular gasps and then absolute apnœa until resuscitation.

After release of the head arteries, respiratory movements began on an average in about 6 minutes, but some time still elapsed before the centre became amenable to afferent impulses.

They noted in a large number of animals a very constant rate of respiration—about 4 per minute in the first moments of resuscitation. At this time the centre was discharging rhythmically and effectively, but stimulation of brachial or vagus had not the slighest effect on respiration, nor did the section of the vagus nor the brain-stem alter the rhythm.

Asphyxia, however, produced the usual increase in respiratory movements.

These facts the authors regard as a new proof of the automatism of respiratory centre.

During the inactivity of the bulbar centre, respiratory movements involving the lower ribs and abdominal muscles at a rate of 9 per minute were noted.

The Vaso-motor Centre. Here occlusion first causes a rapid rise

of blood pressure, then a fall to a fairly constant low level, which is maintained until the release of the cerebral vessels. After release a rise, but only slight, occurs before stimulation of afferent pressor or depressor nerves becomes effective.

This result indicates that the vaso-motor centre possesses a less degree of automatism than the respiratory, but also that some at least of its tone is independent of reflex causes.

The Cardio-Inhibitory Centre. Occlusion leads to rapidity of heart-beat, (loss of inhibitory influence) even during the early rise of blood pressure.

After resuscitation the tone of the centre is long in re-appearing as shown by an unaltered rate on section of the vagi: but earlier than this, stimulation of the upper end of the vagus gave rise to slight cardiac inhibition.

In a later paper in the same journal, Stewart gives some results of double vagotomy where he finds that in animals surviving for some time after vagus section, the respiratory rate remains slow, whereas the pulse rate, at first slow, gradually approaches the normal.

This constancy of the respiratory rate, he attributed to the assertion of the fundamental respiratory rate, in the absence of impulse through the Hering-Brewer fibres of the vagus. Here double vagotomy closely resembles vascular occlusion.

In connection with the vaso-motor centre, Porter, Marks and Swift, in the Amer. Journ. of Phys., discuss the possibility of the dangerous lowering of the blood pressure through fatigue of the vaso-motor centre from prolonged stimulation, as in a severe surgical operation.

In a considerable number of animals they stimulated on an average for 3 hours, the central end of sciatic and brachial, posterior spinal roots, and various sympathetic fibres. In no case did they find from this procedure a fall of pressure, as compared with controls not so treated.

From a rather lengthy article by Erlanger, upon the relative rhythmicity and conductivity of the auricles in the mammalian heart, one may point a few of the conclusions as follows:—The region of the right auricle in the vicinity of the mouths of the great veins is possessed of the highest degree of rhythmicity. In the majority of instances this region sets the pace for the whole heart.

The sudden withdrawal of the influence of this region results in transitory stoppage of the parts below it, which after recovery usually beat at a permanently slowed rate. The right auricle possesses a grade of rhythmicity second only to the great veins, all parts of it beat when functionally isolated from the rest of the heart.

The left auricle isolated from the auricular septum and right auricle, is rarely spontaneously rhythmical.

A block may be established between any two parts of the auricles, provided one is spontaneously rhythmical, by narrowing the functional connection between them. Since all the phenomena of heart block can be obtained by narrowing the functional connection between any two spontaneously rhythmical parts of the auricles, there is no reason for assigning to the auriculo-ventricular bundle any special physiological properties other than those which result from the fact that it is a narrow bridge of tissue joining two other spontaneously rhythmical masses of heart tissue.

Cannon, of Boston, *Am. J. Phy.*, Nov., 1907, contributes an article upon "The Acid Control of the Pylorus."

After noting the views at present held concerning the function of gastric evacuation, he states the two factors in this process:

a The Peristaltic waves.

b The condition of the pyloric sphincter.

From X-ray observations he finds the former do not vary in strength, and as food is intermittently discharged, the control of the discharge must reside in the sphincter.

Cannon propounds a theory to explain the mode of pyloric action as follows: The pylorus is tonically closed when food is ingested and remains closed against recurring pressure. The appearance of acid at the pylorus causes the muscle to relax.

The pressing peristaltic waves now force some of the acid chyme into the duodenum. The acid in the duodenum tightens the sphincter against further exit, the same acid also stimulates the flow of alkaline pancreatic juice. As neutralization proceeds, the stimulus closing the pylorus is weakened, now the acid in the stomach is able again to relax the sphincter and thus until the stomach is emptied. He makes use of the X-ray to work out his hypothesis.

Making a mixture of mashed potato, cracker and rice, and bismuth subnitrate, and feeding to a cat in 25 cc. amounts, and examining by X-ray at ½ hour intervals, and measuring the length of the food masses in the duodenum, he found that when given simply moistened with water, ten times as much had passed the pylorus in ½ hour as when moistened with 1% $NaHCO_3$, in one hour three times as much, and in two hours twice as much.

Proteid food was tested by comparing the rate of discharge of simple proteid food and of acid proteid made by digestion with 10% Hcl. and dialysis.

In ½ hour 5-10 times as much acid proteid as natural proteid had passed into the duodenum. In two hours twice as much had passed.

The appearance of acid at the pylorus was tested by a cannula in the antrum upon mashed potato mixed with dimethylamido benzol coincident with X-ray observation. This showed that the appearance of a pink colour (free acid) in the cannula fluid corresponded with a discharge of contents through the sphincter.

In an excised stomach suspended in Ringers sol., hydrochloric acid caused relaxation of the sphincter, while sol. $NaHCO_3$ failed to do so.

The second part of the theory, namely, that "Acid in the Duodenum retards Gastric discharge," was tested by ligature of the pancreatic and bile ducts, which presented the normal alkaline reaction in the duodenum.

As compared with the normal animal, the passage through the sphincter was excessively delayed.

Applying the theory to the known time of stay in the stomach of the various food elements, it is found that proteid remains for a considerable time and emerges slowly, which may be explained by the union of acid and proteid, which delay a pronounced free acid reaction.

Carbohydrates leave the stomach rapidly, as not uniting with acid, and thus early acidity at the pylorus occurs.

Fats are long retained as they inhibit the secretion of Hcl., and after entering the duodenum form fatty acids which, in turn, stimulate the sphincter to contraction.

Some observations on human chyle were made in J. Phy., Dec. 1906, by J. M. Hamill. He was fortunate in observing a young man of 20 in the London Hospital, with a congenital chylous fistula in the groin. He found an average sample to have the following composition:

Total solids 3.87, ash. .83, fat 1.3 gm. (variable). Total N. 364, extractions N. 0112, lecithin 4.2 per 100 gms., ether extract cholesterin 5.2 per 100 gms.

In colour from bluish white to yellow, alkaline, sp. G. 1.007, it clotted readily, but its coagulation was prevented by drawing into oxalate solution.

The rate of flow was 4 litres in 12 hours. No reducing sugar was found.

Amylose was found by taking two tubes of filtered chyle, boiling one and not the other, and adding to each, boiled starch, and standing for 4 hours at 37°C., when the unboiled tube gave well marked Fehling test, the boiled no reduction. Lipase was found by similarly heating two tubes and adding to olive oil, when in the unboiled tube the acidity increased to 1cc. NaOH. Concerning the fat content, it was found this was at its maximum 6 to 8 hours after the chief meal of the day.

After feeding large amounts of butter but scant traces of the volatile butter fats were found, but the higher fats, olein, etc., were increased corresponding to the fat intake.

Lecithin fed by the mouth showed an increase in the ether soluble phosphorus in the chyle, indicating that lecithin is absorbed.

Paraffin fed in emulsion did not appear in the chyle, showing its uselessness as a nutritive fat.

Bainbridge and Beddard repeated Bradford's experiments, in which he removed portions of the kidney in cats. They removed part of one kidney at one time, and some weeks later the other. In all cases death occured in a few days or weeks after the second operation.

Differing from Bradford's observations they found no increased N. output until 28% of body weight was lost, when the animals became to all intents starving animals in which the N. output is always increased.

Bradford found that nephrectomized cats were unable to pass anything but a very dilute urine, and this in large amounts, whereas the other observers found a normal amount of moderate concentration.

They thus conclude that nephrectomy does not set up an abnormally great nitrogenous metabolism.

The much debated question of the effect of alcohol upon the heart is considered by W. E. Dixon, in the J. Phys., March 27, 1907.

As to the rate, he finds that the ordinarily noted acceleration of the heart is due to reflex stimulation by concentrated solution and to the circumstances attending administration.

Given in weak solutions this effect is not seen.

In a feebly beating heart, however, as at the end of a long perfusion experiment, small doses of alcohol improve the quality and increase the rapidity of the heart rate.

Dixon has found a similar effect from the administration of glucose.

Large doses of alcohol slow the beat. This does not occur in the severed heart, nor after section of the vagus. The latter procedure, indeed, restores the rate to the normal. Perfusion of the heart with moderate .08% alcohol permanently increased the amplitude of the beat, but .8% solution first increases but later decidedly weakens the beat.

In a rabbit's heart, immunized by giving 1 gm. per kilo body weight of alcohol to the animal for three weeks, perfusion with .2% alcohol greatly increased the height of the contractions.

Evidently alcohol possesses, according to dose, two distinct actions: stimulation and depression, and the boundary may be easily overstepped. Dixon explains the former quality by the nutritive power of the drug.

Blood pressure in moderate doses is raised by alcohol, but this is largely a cardiac effect. In large doses it causes a cardiac fall of B.P. analogous to chloroform. A. R. G.

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THE LIMITS OF KNOWLEDGE,

THE INAUGURAL ADDRESS OF THE MEDICAL FACULTY OF THE McGILL UNIVERSITY, MONTREAL, 22ND SEPTEMBER, 1908.

BY

G. A. GIBSON, M.D., LL.D.,
Physician to the Royal Infirmary, Edinburgh.

Such an honour as that which the faculty vouchsafed to me in the request to address you to-day led—as you may readily believe—to much searching of heart. At the first blush the prospect seemed too alluring to be foregone; second thoughts followed, burdened with doubts whether it would be possible to rise equal to the demands of the occasion; these, however, in turn faded before the feeling that the only fitting acknowledgement of your kindness lay in yielding to your wish.

It is indeed a source of much pleasure to be again amidst the fair scenes of this great Dominion, and to dwell upon the manifold beauties showered upon her by the ungrudging hand of nature. It is delightful to gaze once more upon the broad bosom of the silver river with its emerald jewels, reflecting the glowing tints of the woods in their winsome robes. It was amongst these lovely scenes that the thrilling pictures of Parkman first held me in thrall, and led me to understand, as would in no other way have been possible, the lives and works of those who, during two centuries of conflict, strove for the mastery of the new world. Here also was borne in upon me the full meaning of the charming tales of Parker, and amidst their natural surroundings the characters whose loves and hates throb in his pages took an even more living form.

Under the witching wand of these, and many other wonder workers who have lived in your midst, the ground is hallowed by thoughts of the past. What a marvellous vista it is! The brave stealthily gliding through the primæval forest: the pioneer pushing further into the western fastnesses: the seigneur struggling for the foundation of a new nation: the priest labouring for souls, faithful unto death: the soldier

freely shedding his blood for the honour of his flag: the statesman spending his energies in work for the common weal—these and a hundred more scenes rise before our eyes.

Such thoughts fill the mind with vivid pictures of the past, and it is meet that we should dwell upon them. The eyes of the world were turned with warm sympathy to Canada while you recently celebrated the third centenary of the foundation of Quebec by Champlain. Well nigh four centuries have elapsed since Cartier called the beautiful ridge near which we stand Mount Royal, " and hence the name of the busy city which now holds the site of the vanished Hochelaga." A hundred years passed away before your city was founded—years of conflict with foes without and foes within; of undaunted labours for the creation of a new France; of success and failure in the great schemes of conquest. Amongst the great names which will for all time hold a place on the scroll of fame there will assuredly be none more free from fear or reproach than that of the intrepid and lofty being who planted your fair city. Well has the historian said: " The spirit of Godfrey de Bouillon lived again in Chomedy de Maisonneuve."

To turn from general topics to those which are more nearly allied with the object of to-day, a glance may be cast at the rise and growth of the University. Its far-seeing founder died in 1813, and eight years afterwards a charter was obtained for its erection. A teaching staff was appointed in 1832 and, although many of the posts were nominal, the healing art was, from the first, represented, Thomas Fargues, a graduate of Edinburgh, being elected in that year as Professor of Medicine.

The " House of Recovery " was opened for the reception of patients in 1818, when T. P. Blackwood was appointed Medical Officer. Three years later, in the same year which saw the foundation of the University, the Montreal General Hospital was instituted, and the first medical officers were, Robertson, Stephenson, Holmes, Caldwell, and Leodel, who organized themselves as a teaching body upder the name of the Montreal Medical Institution, and began to give systematic instruction in 1824. The members of this teaching body entered the McGill University as its Medical Faculty in 1829, and that no time was lost receives abundant proof from the fact that in 1833 the degree of Doctor of Medicine was conferred upon William Logie, who was the first graduate of McGill University.

It is very pleasant to know that amongst the distinguished group of men who formed the pioneers of medical education in Canada, several were graduates of my own university. Stephenson, Holmes and Robertson studied and graduated in Edinburgh; the origin of McGill University, on its medical side, is therefore connected with " Modern

Athens," and its early teachers brought to Canada the methods of the sagacious Whytt and the philosophic Cullen as well as the spirit embodied in that wonderful academic succession furnished by the celebrated families of Gregory and Monro.

To one conning the memorials of your early past, it is a source of much interest to be able to trace the homes of medicine in this great Dominion. Thus it is that the drawing of the General Hospital, as it was in 1830, in "Hochelaga depicta" is to me full of interest, while the painting by Lamb of Burnside House, showing how it nestled at the foot of the mountain, in 1843, furnishes a historic link in the academic chain.

It would be tedious to you, who know the various steps by which the University grew from its picturesque birthplace at Burnside, till it finally reached the superb site it now holds near the old home of its founder, to follow the various steps; to those, like myself, pilgrims from the mother land, there is a fascination in tracing out the successive stages of its development, and in recognizing how similar the mode has been to that which may be seen in the old world. In the course of this development it is a very agreeable fact that the academic ties with the old country are becoming closer instead of weaker.

Without dealing with such as unite Montreal to the Universities of the rest of the United Kingdom, a word or two may be allowed as to the present links between Canada and Scotland. Your Chancellor holds a like position in the Northern University, situated between the Dee and the Don; there, as here, he has so fostered the growth of learning and inquiry as to merit the title of a modern Mæcenas. That many years may yet be vouchsafed to him in which he may continue his beneficent endeavours for the advancement of education is a prayer as frequently and as fervently offered on the shores of the North Sea, as on the slopes of the Mountain. And in this connection let me add that the kinsman and colleague of your Chancellor, who along with him not only founded and endowed the beautiful Victoria Hospital, but aided the development of the McGill University by munificent gifts, must be likewise regarded as a large-hearted benefactor on both sides of the Atlantic.

It is impossible to resist the impulse to make some reference in this place to the noble gifts of your most sincere friend, Sir William Macdonald, who has not only manifested his interest in the University by donations which are more than pricely, but has also devoted his time and energies to the personal direction of many improvements which his generosity has made possible. The erection and equipment of magnificent laboratories, and the foundation and endowment of additional chairs are sufficient evidence of his beneficent exercions, but even these

have been overshadowed by the establishment of the most admirable Agricultural College which the world has ever seen.

Some years ago you carried away the head of one of the Colleges belonging to the University in the "grey old town" to preside over your labours, while we who are connected with that ancient seat of learning have, within the last few weeks spirited away one of the most brilliant of your younger colleagues. Such interchanges are fraught with far reaching influences for good. We have many other ties between us. The names of Osler, Roddick and Shepherd, to mention only those connected with the Medical Faculty, are inscribed on the rolls both of Montreal and Edinburgh. In the other Faculties there are also bonds of union with many of the Universities of the United Kingdom, and we are therefore not merely united by the ties of sympathy, but by those of personal connection.

The commonwealth of learning throughout the world shared the grief of the University in the loss sustained by the Medical Faculty through the lamentable fires which destroyed the results of many years of labour, but observed with delight the dauntless energy with which you at once set to work to repair the damage and replace what had been swept away. The new buildings which are now arising like a Phœnix, as the late Dean has well put it, from the ashes of their predecessors, are an evidence of the indomitable spirit with which the University is instinct.

That the good fortune which has attended the Faculty of Science may be extended to that of medicine, is the sincere wish of the many friends you possess on both sides of the Atlantic, who felt the deepest sympathy with you in your misfortunes. The hope has been universally expressed that some man of open mind with a large heart and a long purse will realize the importance of a good endowment towards the erection of a perfect medical school. While recognizing that a school is not necessarily created by bricks and mortar, and that imposing piles of stone and lime do not themselves form a university, yet we acknowledge that many departments of modern medical research can only be carried out in suitable structures, and we realize the mutual influence of beautiful buildings and a university spirit. It is matter for regret that only half of the new home of the Medical School, now in progress, can at present be erected for want of funds, and that years may elapse before it can be completed. Will you let me express the earnest desire that you may have the aid of friends in need?

It would not become me at this time to dwell upon the achievements of the University in the varied walks of knowledge. The special matter to which it is my wish to direct your attention will afford an opportunity of showing that, in those fields best known to me, yoeman work

has been done by her children. But there is one subject to which in common fairness you will allow me to refer.

About two years ago certain changes in the blood taking rise in affections of the intestines, which had till then, only been described by three workers in the Netherlands, were found by Carstairs Douglas and myself, to be not merely due to the presence of a bacillus in the bowel, whence toxines were absorbed into the blood, but were found to be produced by the actual entrance of the microbe into the blood, where it multiplied, and poisoned the very springs of being. We felt a little glow of pleasure in having, as we thought, added a new chapter to the life history of bacteria—one which held out, moreover, the promise of practical usefulness: our results, however, had been, unknown to us, fore-stalled by other observers. About a year before our work was done identical results had been obtained in the wards of the Montreal General Hospital by Blackader with the assistance of Gillies and Duval. In a group of symptoms similar to those which engaged out attention they discovered the bacillus coli in the blood. It is a bounden duty, as well as a sincere pleasure to make it quite clear that this discovery belongs to the banks of the St. Lawrence and not to the shores of the Forth. The reason of our ignorance of the Montreal results lay in the fact that those interesting observations were not placed on record until last year, and we had in consequence no means of learning the valuable facts before we published our own later investigations. In the light of what we know it is a great satisfaction to be able to award the palm to those who deserve it. Their researches form a fitting termination to the careful investigations carried out, in this University also, by Charlton, working under the supervision of Adami.

The comparison of the past with the present affords us the best means of guiding future advances. From the failures no less than the successes of ourselves, as well as of those who have gone before us, we are enabled to discern the most fruitful paths of inquiry, and are led to shun the pitfalls which have hindered effort in the past. In other words, our footsteps in the present require to be guided by the light of the past, so that the future may bring with it fruits meet for progress.

In looking about for some particular subject which might usefully occupy our attention to-day, it has seemed to me advisable to take some matter with which my own work has rendered me specially conversant. That now chosen is a subject pregnant with interest, showing how the grey dawn which we owe to the keen insight of the fathers of modern medicine has brightened into the morning light, and how both sides of the world have been engaged upon it, every civilized country in a spirit of generous rivalry doing something to aid the efforts to reach the noon-

tide of knowledge. It is a matter also full of encouragement, for it shows how much may be done by earnest men possessing apparently but small opportunities for original research.

To some of us it is only vouchsafed to spin the thread, and we have to learn to rejoice in cheerful vein when another weaves the web. To the loyal worker in scientific fields it is enough if he feels that he is adding something to the general fund of knowledge. He may not be able to see at the time whither his observations lead, but he knows that, when joined to the results of other investigations, they will be useful. They may not be fitted to enter into the warp and woof; the work of others may be of stronger stuff, for "the web of our life is of a mingled yarn, good and ill together." But even if they do not become woven into the finished fabric they have at least helped other labourers by the example they have shown.

Two of the great men who adorned Dublin during the first half of last century observed a group of symptoms which have in recent times been the object of close scrutiny. Adams, in one of the most remarkable of single contributions ever made to medicine, described infrequency of the pulse attended by apoplectic attacks in cases which presented the pathological appearances of fatty heart. He was followed by Stokes, who, in adding further observations, noticed a want of harmony between the movements of the veins in the neck and of the arteries at the wrist; he stated indeed that the number of the venous pulsations was more than double that of the ventricular contractions. Stokes further described feeble sounds heard between the cardiac impulses. The meaning of these facts will be clear to us in the sequel. Many years passed before the observations of Adams and Stokes received any additions. It is true that a brief mention is made by Skoda to the subject, but new interest was not aroused until the appearance of some investigations by Leyden. The subject was afterwards discussed by Roy, who ranged himself alongside of Leyden in favour of hemisystole as the cause of the want of harmony in the action of the veins and arteries.

To show how our various additions to knowledge are knit together, it may be mentined that almost immediately after the appearance of Roy's contribution, a paper was published by Malet and myself in which we described the sound of the auricles in a healthy heart. The case was one of sternal fissure. Little did we think when placing this observation on record how it might afterwards prove fruitful. Linking it with the observations of Stokes, these isolated facts, apparently of no great value at the time, were afterwards found to be of real importance.

Some five years after our observation was placed on record Chauveau described a case of heart disease in which, for the first time, a dissocia-

tion of auricular and ventricular rhythm was carefully analysed by modern methods. This was followed by an excellent study, in which Vaquez and Bureau still more clearly emphasized the lack of harmony between the movements of the auricles and ventricles. These investigations have been followed by the results obtained by a large number of observers who, by means of clinical methods, have been able to demonstrate in the most complete manner that a partial or total disociation may take place. It may seem almost invidious to single out any names in this connection but it is only right that we should honour those who have been pioneers in this field and it is accordingly a pleasure to refer to the work of Moritz, His, Lichtheim, Mackenzie, Wenckebach, Hirschfelder, and Osler.

Besides obtaining such results in the investigation of the cardiac, arterial, and venous movements by the graphic method, it is full of interest to be able now to add that the sounds of auricular contraction have been over and over again heard by many observers in the intervals between the complete systole of the heart. These facts absolutely prove the correctness of Stokes' observations, and bring them into harmony with the physiological sounds described by Malet and myself.

Another addition to our knowledge of this interesting condition is due to Ritchie, Magee Finny, and Brouardel and Villaret, who, independently of each other, took advantage of the fluorescent screen in order to watch the movements of the heart. They published the interesting fact that the auricles can be seen beating in the intervals between ventricular systoles. During the last three years this observation has been frequently repeated by other observers, and is now well known.

Einthoven has taken advantage of the electromotive changes produced by the action of the heart, and by means of the string galvanometer has obtained beautiful tracings from cases of heart block, which demonstrate beyond the possibility of doubt that the electromotive changes caused by the action of the auricles may be seen entirely dissociated from those caused by auricular action. In ignorance of the important observations being made by Einthoven, the electromotive changes in heart block simultaneously engaged my attention. My investigations were carried out with Lippmann's capillary electrometer. The movements of the column of mercury, thrown upon the screen by means of a projection microscope, showed the ordinary oscillations caused by the electric changes attending the apex beat, but, between these, smaller waves were distinctly visible, and were undoubtedly produced by the contraction of the auricles.

One more clinical result obtained in this disease may be referred to before we pass on to the explanation of the condition. The arterial

pressure in such cases has attracted my close attention. Observations on a good many cases has now proved that the systolic pressure may reach a level of from 270 to 300, while the diastolic may, at the same time and in the same individual, be as low as from 70 to 80 mm. Hg. This must be regarded as a most interesting fact, showing that the long interval of time following each ventricular contraction allows the high arterial pressure to fall to a low ebb before the succeeding systole occurs. It need scarcely be added that in such cases there is no aortic incompetence, nevertheless clinical investigation of the arterial pressure yields results singularly like what we are accustomed to observe in that condition.

We have in this chain of investigations a really interesting illustration of the gradual evolution of clinical knowledge, and we must now enter upon the successive steps by means of which the different facts have been subjected to analysis and synthesis.

All of us who have sat on the upper forms at school must remember that the great epic poet of Rome tells of the happiness of him who is able to discern the causes of what he sees. The investigation of a series of appearances such as those that have now received our attention has furnished abundant interest, and therefore happiness, for all of us who have worked at the subject. Some points were found to be easy of explanation; others much more difficult. We have not merely to exercise the imagination in the search for these causes, but we may even invade with caution the realm of speculation. It is a subject which allows opportunities to "spin the gossamer as well as forge the anchors of the mind." Our thoughts are not all endowed with the possibility of soaring to the very roof of heaven, but it is within the reach of us all to contribute what we can to the general advance, and some of the suggestions, as well as many of the observations, are due to men deeply engaged in the hard work of general practice.

Until the last quarter of the previous century the heart was considered to consist of what might be termed distinct compartments, absolutely separated from each other and not united by any continuity of muscle fibres. The first light borne in on the subject came from the investigations of Gaskell, who showed that there was a direct and continuous connexion of the sinus, the auricle, and the ventricle. It is exactly a quarter of a century since this great work made its appearance. Every succeeding observation has only served to prove more thoroughly the accuracy of the views which he then expressed, and to show the remarkable foresight which he manifested in his analysis of the various functions which he described. His investigations, in truth, have permitted the esoteric explanation of the condition at pre-

sent under consideration . The facts unfolded by him formed, ten years afterwards, the subject of an interesting study by Stanley Kent, who, devoting attention more exclusively to the connecting link between the auricle and ventricle, showed the path by which impulses passed from one to the other. His, in the same year, published his anatomical researches by which he still further advanced the subject, and with these investigations the first chapter of the anatomical explanation terminates. Eight years afterwards Ewald returned to the link binding auricle and ventricle in the frog, and shortly afterwards Retzer, Bræunig, and Humblet extended the observations. These workers paved the way for the elaborate investigations of Tawara, who carried out a most valuable research, fully demonstrating the origin and ramifications of the structures by which the anatomical gaps separating the different portions of the heart are bridged over. Keith has more recently, in a manner as lucid as it is luminous, further extended these remarkable investigations.

The researches of Tawara have shown that the auriculo-ventricular bundle is only a part of a great system; it descends on the interventricular septum, ramifies throughout every part of the ventricular walls and is continuous with the system of Purkinje fibres. The papillary muscles are brought into especial relation with the system, and this very interesting point throws a vivid light upon the important observations made on the functions of these structures by Roy and Adami, to which the latter has again returned more recently.

Keith has illuminated the subject, as he usually does, by the brilliance of imagination as well as the result of labour. He described the musculature of the sinus as being freely continuous with that of the auricular canal and auricular appendix. In searching for a clearly differentiated system of fibres within the sinus, which might serve as a basis for the inception of the cardiac rhythym, he discovered a peculiar structure surrounding the arterial circle at the junction of the sinus and the auricle. The structure closely resembles that of the auriculo-ventricular bundle, consisting of an intimate network of pale, undifferentiated fibres with well marked nuclei. This structure contains numerous nerve cells and nerve fibres. Although the mass is undoubtedly muscular in its main structure, yet the nerves in the neighbourhood of the vena cava enter into very intimate connexion with it, so that Keith feels justified in stating that a peculiar neuro-muscular junction occurs at this point.

As assisting us in understanding the functions of the heart, the researches of MacCallum on the muscular connexions of the two ventricles, of Keith upon the special anatomy of the heart, of Porter on the

relation of blood supply to cardiac activity, and of Henderson upon ventricular movements, are far reaching in their results and enable us more fully to apprehend the questions arising in connexion with this subject. The former has shown most distinctly that the ventricles are composed of a simple long band of muscle beginning and ending with a tendon. It has its origin in the connective tissue of the auriculo-ventricular junction on one side of the heart; it passes around the outer wall of that side and reaches the ventricular septum, whence it goes on to encircle the outer wall of the other ventricle, and finally terminates in the tendinous cords of that side. It is probable that the fibres of the auriculo-ventricular bundle enter into direct relation with the centre of this long scroll.

Some of the results obtained by Keith have already been referred to, but the observations which he has made from the standpoint of comparative anatomy deserve to be recalled. He has shown that the sinus venosus, the auricular canal, the auricle, the ventricle, and the bulbus, are all represented in the mammalian heart, and he has been able not merely to trace these primary divisions, but to show how in the evolution of the heart in the higher mammals these various parts have been modified to suit the requirements of development. The results of the investigations of Porter and of Henderson have been of the greatest service to us in our clinical work on disturbances of the heart muscle.

Turning to the results of experimental physiology as directed more particularly to our subject, we have to acknowledge a deep debt of gratitude to certain distinguished observers. First again, physiologically as well as anatomically, comes the name of Gaskell, in the epoch-making work to which reference has already been made. He pointed out the existence of a natural block of the auriculo-ventricular junction, and further showed that a more or less complete stoppage could be produced either by section of the auricle or by increase in the natural block. In this way he was able at will to interrupt the passage of impulses more or less completely. His, from a number of experimental investigations, showed that interference with the conduction of impulses could be produced by section of the auriculo-ventricular band. It is, however, particularly to Erlanger that we are indebted for a study of this important subject. By his ingenious method of experimentation the auriculo-ventricular bundle can be subjected to varying degrees of pressure, and he has been able in this way, as is now widely known, to produce at will every degree of partial or complete blocking of impulses. From the experiments of Gaskell, His, and Erlanger, it is clear that the upper parts of the heart possess the

quality of rhythmicity in a higher degree than the lower; that the rate of the heart is determined by the upper and more rhythmical portions, and if the lower and less rhythmical are separated from the upper and more rhythmical portions, the lower part may assume a rhythm of its own. From two very interesting studies by Hering, and by Erlanger and Blackman, which have recently made their appearance, the relative rhythmicity, excitability, and conductivity of the different portions of the heart are most clearly brought before us.

Pathological evidence has not been long in following upon the heels of anatomical and physiological investigation. Stengel, Jellick Cooper and Ophüls, in America, and Keith and myself in Europe, in the same year, put on record instances of disease of the auriculo-ventricular band from cases of heart block. In some of these cases the structural alteration was a gumma of the interventricular septum; in others it was a simple fibroid change, without any very obvious cause. In one instance which aroused a most widespread interest, seeing that it occurred in the person of one of the most venerable and distinguished physicians of the British Isles, the change has been found to be of the nature of a calcareous infiltration.

Here again Montreal is going to help us. We await with lively interest the publication of a very remarkable case lately under the care of Professor Martin, in the Royal Victoria Hospital. The heart, which has been kindly shown me, with the permission of Dr. Martin, by Professor Adami and Dr. Klotz, shows a total destruction of the bundle by a sarcomatous invasion; the patient, notwithstanding, never showed any of the usual appearances of heart block. It would not become me to discuss the possible bearings of this remarkable case; we shall look forward with eagerness for the full details which Dr. Martin has promised.

Such then are the main lines of the explanation of these interesting appearances. When we seek to enquire which of the five distinct functions of cardiac activity are involved, we discover that it is easy to demonstrate the implication of two of them. Rhythmicity in itself is not disturbed, for the auricular pace-maker pursues its even tenor: contractility is in no way lessened, since the work of the heart may be in no degree diminished; tonicity, it hardly be said, is not a function necessarily involved in this group of symptoms, although undoubtedly, seeing we deal with senile heart in many instances, this property may be lessened. The cause of the appearance lies, as a rule, in diminished conductivity, the auriculo-ventricular bundle being so damaged as to diminish the function, or even abrogate it. Some interesting tracings from a patient long under my care have, however, shown that the function of excitability may be disturbed, and this may, therefore, be

partly responsible for the symptom. Hay has especially devoted attention to this aspect of the subject.

Is it possible to get beyond this point? Can we peer further into the darkness which surrounds the real cause of these varied appearances? In other words, are we able to say how the heart is endowed with such functions, and in what way they are disturbed?

We may fearlessly assume that the entire realm of nature is freely open to our enquiries. The Venusian bard, whose verses have, ever since the revival of learning, been the solace of such a multitude as no man can number, is assuredly astray when he sings:—"Nec scire fas est omnia." But while we claim the right to examine every natural phenomenon, we are led to acknowledge that some facts are within our reach, while others are beyond our ken. In the quest of truth it is wise to bethink ourselves of this distinction between the attainable and the unattainable. Above all, it is our duty not to be dogmatic as regards matters which we cannot know. It was Huxley who said that "the assertion which outstrips evidence is not only a blunder, but a crime." Some of the appearances which have been brought before you to-day have furnished an example of speculation in the region of the unattainable, of playing with words rather than working with things. Within recent years much time has been wasted in futile assertions that the five great functions of cardiac activity ,recognized by Gaskell, are entirely due to inherent properties of the heart muscle, or, as it put, are of myogenetic origin. According to this view, or, as it would be better to put it, according to these views—for the opinions of the myogenetic school are often so contradictory as to cancel each other—the heart lives and moves and has its being independent of the wonderful and beautiful arrangement of nerve ganglia and nerve fibres, as also with their intimate connexions with the central nervous system. To suit these hypotheses the nervous system is allowed to interfere with, but has no part in, the production of, cardiac action. Is this not a strange departure from the deep saying of Galen, that "Nature does nothing imperfectly or vainly"? But this is a matter with which on the present occasion there is no time to deal. Suffice it to say that there is no proof of these assertions. Last year the subject occupied my attention in the Oration of the Medical Society of London, and it was a sincere pleasure to be able to range myself beside your Professor of Physiology, who, a few weeks before, in an eloquent address, gave a powerful indictment of the fallacies of the myogenesists. It is unlikely that any man of science with balanced mind will commit himself to the tenets, either of the myogenetic or of the neurogenetic school. We must wait for more light before we are in a position to

dogmatize on this matter. "Far more of our mistakes," says Matthew Arnold, "come from want of fresh knowledge than from want of correct reasoning." The intolerance which has been shown by the protagonists on both sides as regards this question makes many of us doubt whether the "tart apostle of sweet reasonableness" was right in his remark. New facts will be gained which will help us to reach more definite conclusions as to the esoteric meaning of cardiac activity, and until we are in possession of such facts we must keep our judgment in reserve. Hence the title chosen for this address.

A few words, addressed more especially to the undergraduates of the University may in the last place be allowed me. These must be taken as coming from an older to younger brothers. You will not expect me, in the terms of a certain school of theology, to "improve the occasion." If you do you will be disappointed. The purpose of the remarks which have been made is to bring some aspects of modern research before you, to hearten you in your studies, but at the same time to warn you of the dangers which may attend them. We have seen in one small field of the vast domain of medical study that many industrious labourers have been engaged upon the matter; that the gradual growth of knowledge has taken place by separate additions made by patient observers; and that it is within the power of each and all of us, to contribute to the store of information. In all this you have great encuragement for your work to come. The illustration chosen is only a single example of what you will find in every branch of science. The first aim of every one of us must be to strive after fitness for the task which each will find. Again one of the clearest duties lying to our hand is to discover in which direction practical usefulness may most likely be found. In the present age omniscience cannot be our foible, and a wise choice of study is an absolute necessity. To be able to grasp the real and eschew the unreal is the first requisite of him who is in quest of truth. You will be guided in your early footsteps by men of experience and distinction, who will help you to gain an insight into what is worth study. In this way you will escape the risk of resembling the dull pedant of whom the American humourist sings:—

> "A reading machine ever wound up and going,
> He mastered whatever was not worth the knowing."

In the search for truer interpretations of natural appearances we must train ourselves to build our foundations on the solid bedrock of fact. Blowing hypothetical bubbles will not avail. It would be foreign to the genius of my race to contemn philosophical reasoning, but it is nevertheless a duty to condemn baseless speculation. Imagination rightly used is of the highest value in science.

"But not for golden fancies iron truths make room."

The scientific method is, as Huxley has clearly stated, "nothing but trained and organized common sense, differing from the latter only as a veteran may differ from a raw recruit." No one can successfully dispute this statement, and probably few will make the attempt. There is no need for me to dwell on this theme, but it will not be out of place to add that this quality of common sense is not the possession of mankind in equal proportions. To some it has been granted in fuller measure than to others, but to most men a fair share has fallen. It is one of our first duties to listen for the whisper of this inborn wisdom or common sense which must be our final guide in all our work. May we not without any great strain apply to this gentle voice, the words of an early English poet, who died just four hundred years ago?

"The vertue of her goodly speche,
Is verily myne hartes leche."

Goethe long ago frankly said that in his old age he had found it hard to be as wise as he had been in youth. This is a brilliant paradox, the meaning of which is clear, so that he who runs may read. But there is another side to the shield. It is within reach of all of us to train this inherent quality by the discipline of experience. There is but one way in which this can be done; the way of hard work. In this age of strenuous endeavour it seems unnecessary to emphasize this gospel. It has been preached by many modern writers, from Carlyle to Kipling, and the nobility of work in every field is now universally recognized. Upon us, most of whom are or will be concerned with the practical duties of serving our fellow-men, it is incumbent to remember to what a high calling we are devoting ourselves. We have to enter into the lives of others in the fellowship of suffering as well as the brotherhood of happiness. "Man is the only book of life" says Pierre, and in this saying of Parker's interesting creation there is deep significance. It is our privilege, above all other men, to have the leaves of this book opened to us, and we must fit ourselves for its study.

In all our doings we must spend our lives in truth, faith, hope, love—clinging to that mood of mind, bent on winning to the very heart of everything; believing in real work as the means whereby in its own good time what is now hidden will be laid bare; trusting that the end of our quest will be the furtherance of knowledge and the good of mankind; and holding each of our fellow workers in such kindly thought as will lead us to be happy when any of them makes a forward step. May each of us be able to say in the words of a historic rascal, who yet had the elements of good in him, Francois Villon:—"En ceste foy je veuil vivre et mourir."

CENTRAL NEURITIS.

BY

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Adolf Meyer in an article, "On the Parenchymatous Systemic Degenerations mainly in the Central Nervous System," published in *Brain*, 1901, proposed for this type of disorder the shorter term, "Central Neuritis," in which there was a parenchymatous degeneration of the nerve elements, but here pre-eminently of central distribution.

Clinically, the disorder seems to be an acute or sub-acute process lasting from a few days to several weeks, which occurs as a terminal disorder in a number of psychoses, particularly in certain asthenic conditions, frequently accompanied by diarrhœa and febrile reactions and characterized for the most part by loss of weight, progressive weakness, muscular tension and rigidity, incoordinate movements, and motor restlessness; the latter, at times, amounting to jactations of the limbs, with reflexes usually increased. The mental condition is usually that of an anxious, perplexed agitation or a stuporous and, at times, delirious state.

Anatomically, the gross changes are absent or those incident to the period of life; microscopically, a diffuse parenchymatous affection, especially of the largest nerve elements in the neural tube (most evident as a bilateral axonal reaction in the Betz cells) and decay of the myelin sheaths—the process involving the supra-segmental elements much more than the segmental ones.

This broadly defines the disorder which has doubtless come within the experience of many of us, but has not been given a place sufficiently apart from the terminal phases of delirious-stuporous conditions and unaccountable physical failures.

Aside from the cases of Dr. J. Turner and those reported and collected from the literature by Dr. Meyer, few cases have been recorded, and there still remains much in the etiology, onset, course and outcome of the disorder and the underlying anatomical condition which demands attention and study.

The object of this paper is to present nine additional cases observed in the wards of the St. Lawrence State Hospital. The diagnoses of these cases have all been confirmed by autopsy and by microscopic examination, the main results of which follow each case in summary form.

The disorder has so far occurred mainly in the 4th, 5th and 6th

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decades of life in such psychoses as chronic melancholias, depressive senile states, or during the course of alcoholic delirium or hallucinatory depression, and in some other ill-defined infective-exhaustive conditions.

In my nine cases, five have occurred in infective-exhaustive conditions, with durations previous to the neuritic symptom-complex for two and a half to thirty-six months; two in dementia præcox of thirteen to twenty years duration; one in melancholia of three months' duration, and one in depressive-senile state of fourteen years standing. In the infective-exhaustive group the possible etiological factors were apparently—la grippe; in another, anæsthesia and operation for hæmorrhoids; in the third, profound anæmia; in the fourth, strumuous diathesis with prolonged ill health after alleged attack of la grippe; lastly, one with no well-defined etiology.

Relative to the two cases of dementia præcox, one had had tuberculosis for an indefinite period, but the neuritic symptoms seemed to follow soon after anæsthetic and operation for gangrenous toes. The other case was exceedingly filthy. The cases of melancholia and senility, one each, showed no definite etiology, otherwise than the general changes incident to their period of life.

The onset has not been clear or distinct; the peculiar motor reactions are apt to be charged up to psychic states or simple weakness. In my cases physical failure with weakness preceded the distinct evidences of muscular tension and jactations for one to twelve weeks. Weakness with a tendency to stumble or fall if up and about, or helplessness, if abed, attracts the attention. The brighter patients voluntarily complain of weakness in the lower limbs. Slowly and rapidly further prostration develops, accompanied or followed by increasing tremulousness, which, at times, may be of a fibrillary character, usually noted in the smaller muscles of the upper extremities. These movements may be recurrent and may appear as if due to delusional concepts such as fear or because of apparently being startled. A greater degree of muscular rigidity with distinct twitchings and sudden jerks of the limbs supervene. The limbs are apt to be semi-flexed, generally the arms first, and the patient's voluntary actions with the arms are noticed to be jerky, over-done, and quite ataxic. Strong tonic flexion of the thighs and legs is not infrequent. The ankles, and especially the toes seem less involved. The flexor and adductor arm muscles more decidedly, but the extensors and abductors, pronators and supinators are over-active as well. In well defined cases there is involvement also of the facial muscles resulting in a sardonic expression, peculiar grimaces, varied twitchings and occasional sidewise motions of the jaw.

The pectoral and neck muscles may participate and retract the head in the advanced stages. As muscular tension increases there are more frequent jactations, which seem to be worse on approaching or attempting to do anything for the patient. These jactations in severe and well marked cases seem electric-like, and in their character paroxysmal, and considering the slight causes that produce them, they are somewhat comparable to the jerks of strychnine poisoning. The muscular tension, relaxation and clonicity of the movements vary considerably. In some, the jactations slowly increase in frequency and severity until the arms, neck and jaws are in rapid play. Then there will be a gradual or sudden subsidence so that an episode might simulate in a measure an epileptic seizure.

The range of movements is not very wide, except when a voluntary effort is made to grasp something, or when the patient is disturbed. If a tense limb is released from one's grasp it often flies in unexpected directions.

Owing to the torpor or even stupor of the patient, tactile sensibility cannot be obtained, but pain sense is moderately reacted to. Manipulation of the joints in some cases causes the patient to wince or cry out as if in pain.

The tendon reflexes become increasingly exaggerated, and when the condition is well advanced, tapping of any of the limbs will produce grotesque and speedy jerks. Ankle clonus can be obtained in some cases. Babinski's reflex is apparently absent. The organic reflexes remain intact until the terminal stages.

Concerning the mental state of the individual, at the outset there may occur more or less mental dulness, which may become more marked until a stuporous condition is reached. However, quite a number of cases exhibit delirious episodes of acute or sub-acute type and eventually show increasing stuporous phases. The latter, however, are not profound until the terminal stages, for the patients seem to arouse and from time to time make observations, attempt to speak or reach out for something with tense and tremulous muscles. In the cases, reported in this paper, it appears that the stuporous-delirious episodes may also precede the characteristic nervous phenomena from a few days to eight weeks.

With the development of the case the facies of the patient is rather characteristic of a delirious or exhaustive condition, the eyes are rather wide open and there is frequent blinking of the eyelids. The coma vigil expression is applicable in some cases.

In the cases at this hospital, the duration of the characteristic mus-

cular tension and jactations has ranged from three to fifty days, and the outcome has been uniformly fatal.

The termination of the case is generally in profound stupor preceded by difficulties in articulation and deglutition; respirations become irregular, increased and laboured. The pulse is rapid. Duskiness develops and feeble jactations may continue to a few moments before death.

The sub-acute forms of Central Neuritis differ from the more acute in that the muscular twitchings are slower in development and may not reach the degree of jactations, which characterize the rapidly fatal types. In the acute process there is rapid loss of weight; in the sub-acute conditions, emaciation becomes marked.

My nine cases showed a history of diarrhœa in six during some period of the disorder, usually at the outset; and a similar number showed a decided increase in bronchial secretions. In but one case there were found albumen and casts in the urine.

Temperature records, which were kept in seven cases, showed an average elevation of two degrees, while in two cases the temperature was normal or sub-normal throughout.

The following cases herewith submitted show rather variable symptoms up to a certain point, after which time there seem to be similar symptoms in common.

Case No. 5775. Admitted May 19th, 1905.

This man, aged 51, tinsmith, whose mother and sister had been insane, was well up to eleven months ago, June, 1905. He then had la grippe, but continued debilitated, and within a few weeks became erratic in his conduct. Two weeks before admission showed further prostration and remained in bed. Then expressed a few depressed ideas; said he could not eat or breathe or talk, though continued quite talkative; would laugh and cry; was uneasy, made delirious references, also intimated hallucinations of hearing. and complained that when he loooked at objects he could only see half of them.

On admission, he was unable to walk; answered questions slowly; spoke of feeling exhausted and of having consumption. His nutrition was considerably reduced, though his temperature was normal. He complained of dizziness and would have a tendency to sink down when placed in an upright position. His tendon reflexes were considerably exaggerated and the pupils were irregular, but reacted promptly to light and accommodation. He had quite a degree of arterio-sclerosis and was quite autotoxic. There were rather coarse tremours of hands and tongue, but no muscular rigidity. Otherwise, physical examination was negative. Within two days he became restless, answered questions in a reckless and senseless fashion, giving but little account of himself; had a tendency to fabricate and was inattentive; would have periods of yelling loudly, and in a tottering way would try to walk away from his bed, but would fall; had increased aversion to food, saying that he could not swallow. He continued to show rather increasing ataxia and tremulousness of his arms, and twenty-eight days after admission examination showed quite a degree of muscular tension of arms and legs, with prostration to the degree that he lay flat on his back in bed, with eyes wide open, accompanied with winking of the eyelids and frequent involuntary jerks and jactations of his arms, face and neck muscles. There were occasional electric-like jerks of the sternocleidomastoid muscles. However, at this time he seemed to notice those approaching his

bedside. Then the facial tremulousness was quite in evidence, and would often terminate in peculiar spasmodic grins. He was able to move his eyes in all directions, but his pupils were still irregular, though responsive to light. He had considerable difficulty in articulation, and when requested to protrude his tongue did so in a jerky fashion, which effort brought out quite markedly jactations of his arms and facial muscles. When asked to take hold of examiner's hand, he obeyed the command, but markedly gross ataxic, jerky motions ensued, which seemed to quickly increase in rapidity, and, after a few moments suddenly subside. Otherwise, the position of his arms was in extension, accompanied with frequent jerkings, including some action of the pronators and extensors of the wrists and twitchings of the fingers. The lower limbs were tensely extended, and there were occasional quick hyper-extensions, with marked dorsal flexion of the ankles. His tendon reflexes were all markedly increased, the patellar reflexes being spastic. No Babinski sign elicited. At all times, he reacted promptly to pin pricks. During the last four or five days he was unable to articulate or swallow liquids, and had quite a degree of rigidity of the neck muscles. Respirations became much increased. Pulse became rapid, and muscular twitchings continued until death, when his temperature was 100.2°. On admission, lumbar puncture showed 27 white cells to the cm.

Autopsy seven hours after death. Marked emaciation. Pericardium adherent; aorta atheromatous; lungs showed focal pneumonic consolidations; recent as well as old pleuritic adhesions; congestion of the parenchymatous organs. Brain weighed 1345 grammes. Pia gray; somewhat injected; slightly, but diffusely thickened vessels and negative cortex. Microscopically, there was advanced axonal alteration of the Betz cells, and in a few of the larger pyramids, which showed poor preservation of the peripheral stainable bodies.

Case No. 6069. Admitted March 19th, 1907.

This woman, aged 55, who had an insane uncle, was always considered eccentric and somewhat defective. At the age of 35 began to show mental traits, concerning which but little is known. She had various persecutory ideas, talked much about spirits, dressed in peculiar fashion, and was in an institution for a few years, where, it is said, she was hallucinated. She was discharged improved, and got along well until the early part of 1907, when she became irritable, threatening, talked much about voices, and expressed senseless ideas; wandered about in cold weather improperly clad.

On admission, she was very poorly nourished, and there was harsh breathing over the entire right lung. She was disinclined to talk, became irritable. Her recollections were unreliable and she made vague references to persecutions by neighbours, and also to hearing God's voice. A few days after admission, was given an anæsthetic and two toes amputated from her right foot because of former frost bites. She continued in bed, and in the following month had considerable diarrhœa, cough and expectoration; seemed much prostrated, unable to walk and had a tendency to lean to one side. Two months after entry began to talk in a delirious fashion, showed some muscular tension of her arms and legs with occasional twitchings. There gradually developed marked flexions of the arms and legs, particularly of the latter. The jerkings of her arms became more gross and in greater frequency, and were especially noticeable when she was approached or disturbed. They were confined mostly to the flexor group of muscles, although the extensors, abductors and finer muscles of the hands shared in the exhibition. She eventually developed, also, jactations of the jaw and facial muscles, had retraction of the head, difficulty of swallowing and articulation, and became increasingly stuporous, although, at times, was able to recognize her brother to within a day or so of her death. She was conscious just before death, turned her eyes to the nurse, and feeble jactations, especially of her face, were then noticed.

The duration of her hospital life was three months and ten days, and approximately the duration of the characteristic neuritic symptoms was about three weeks. Throughout the course of her attack her temperature had not been higher than 100°, and the respirations at the last reached 40 per minute.

Eight days before death lumbar puncture showed 13 white cells to the cm. Sub-dural injection of this fluid into Guinea pigs resulted in negative reactions; also cultures in serum and bouillon were negative.

Marked emaciation; tubercular consolidation of right lung; capsules of kidneys adherent; brain weighed 1050 grammes; moderate meningeal congestion. Microscopical examination showed typical axonal alteration of Betz cells with fair preservation of peripheral stainable bodies. The cell bodies of the smaller cells appeared somewhat granular and crumbly. Moderate increase in the free nuclei or satellite cells. Cultures from heart, spleen, liver and kidneys in serum and bouillon probably negative. A few long non-motile negative baacilli with rounded ends and occasional fine polar bodies were observed. Lack of certain identity with pathogenic material casts doubt, and they were doubtless of extraneous origin and due to faulty technique.

Case No. 4616. Admitted November 17th, 1902.

This woman, aged 62, whose father was melancholy and suicided, was well until 44, when she had melancholia, from which she recovered after four years. For the past twelve years has used morphine, taking as high as ten grains a day, and, at times, was somewhat melancholy, but got along well until two months before admission, when she became upset over religious matters; then thought she was doomed to be burned; too wicked to eat, refused food, and said she had been dead for years.

On admission, rarely spoke, seemed puzzled, lay quietly in bed and made senseless reiterations; kept her head covered and fingers in ears. At times, was irritable, obscene, and gave vent to nihilistic expressions. Two years and a half after admission, failed in general strength, gait became unsteady and was unable to get out of bed. Soon became mildly delirious, and gradually developed marked rigidity of the lower limbs, so much so that they were firmly flexed, and she would cry out when efforts were made to move them. There were frequent twitchings and coarse jactations of the arms with quite a degree of flexion of the wrists, thumbs pointing toward the palms. Her tendon reflexes were active, especially the patellar, which were spastic, and for several days her bowels were loose. She had slight elevation of temperature and she became much emaciated. Difficulty of articulation and deglutition supervened, and she died two months and a half after the onset of her neuritic symptoms. At no time did she show sensory disturbances, pupilary changes or positive Babinski reactions. The course of her disease was sub-acute.

Autopsy three hours after death. Considerable emaciation. Abdominal viscera generally congested; evidences of old pleurisy. Brain weighed 1315 grammes; slight general atrophy of the cortex; large cerebral vessels atheromatous. Microscopically, there was a pure, moderately advanced axonal alteration of the larger pyramids with a fair preservation of the peripheral stainable bodies. The smaller nerve cells appeared unaffected. The Marchi reaction was very scanty.

Summary.

The recorded facts concerning nine cases of central neuritis at this hospital tally quite closely with those previously recorded. The disorder has occurred in both men and women in infective-exhaustive conditions, dementia præcox, melancholia and depressive senile states. The duration of psychic symptoms, previous to symptoms of central neuritis, has been from two and a half months to twenty years. In six the disorder has apparently had some relationship to possible etiological factors. Clinically, the onset has not been clear. Physical failure with weakness has preceded the symptoms of muscular tension, jactations and disorder of reflexes for a period of one to twelve weeks.

Delirious-stuporous episodes have also antedated the characteristic motor exhibitions for a few days to eight weeks and then continued to share in the picture. The terminal stages have shown themselves in increasing stupor, difficulty in articulation and deglutition and increased respirations. Throughout the height of the disease some elevation of temperature was noted where records were kept. Diarrhœa and increased bronchial secretion have occurred in six during some period of the disorder, usually at the outset.

Anatomically, the gross changes in these nine brains were, in the main, incident to the age and physical condition of the individual. The microscopic changes were essentially those of a parenchymatous nature in that there was a bilateral axonal alteration of the Betz cells, of the motor cortex and occasional ones of the larger pyramidal type outside this field. The reaction occurs so uniformly in this class of cases that it may be regarded as confirmatory anatomical evidence of central neuritis and sufficient upon which to base the diagnosis, the clinical symptoms having been observed as stated above.

Myelin sheath degeneration, studied in seven of the nine cases, was not constant, being almost completely absent in several, scanty in others and only well marked in one case.

The neuroglia showed no constant reaction incident to the process. There was a moderate increase in the free nuclei or satellite cells among the nerve cells and along the blood vessels. This material furnishes additional importance for the study of these elements.

The connective and vascular tissue appeared unaffected. The pigmentary changes of the cortex seemed excessive beyond the age of the individual and is of interest, inviting further investigation. The bacteriological issue in this type of disorder seems important, but lacks sufficient study, and is a field for further inquiry.

DISCUSSION OF DR. ELBERT SOMERS' PAPER ON "CENTRAL NEURITIS, A REPORT OF NINE CASES."

T. G. Fitz-Gerald, M.D.—I wish to congratulate Dr. Somers on the very capable fashion in which he has handled an extremely difficult subject. It seems to me also, that we are all indebted to him for bringing up and carefully going over a ground which is almost terra incognita, certainly to many engaged in psychiatric work in State and Provincial hospitals.

As Dr. Somers has pointed out, Dr. Adolf Meyer in the spring number of *Brain*, 1901, published an article entitled "On parenchymatous systematic degenerations, mainly in the central nervous system." Four

years previously, that is in 1897, Dr. Meyer had described certain changes in the giant cells of the paracentral lobules in a case of senile melancholia. He spoke of this change as an axonal reaction, meaning thereby, the cell alteration which could be produced experimentally by the section of the axone. Dr. Meyer said further: (*Brain,* 1901) "It is as it were, a focal disorder within the pericaryon, splitting up and dissolution of the stainable bodies, usually between the place of origin of the axone and the nucleus, not around the nucleus, swelling of this region, with involvement of the greater part of the cell interior, and dislocation of the nuclues towards the surface and even beyond the normal contour, persistence of a peripheral ring of lumps and of the spindles in the dendrites. Decay, or at least fatty alteration of the medullary sheath of the axone is a frequent accompaniment. When this alteration is combined with acute alteration the stainable bodies of the periphery and dendrites are also dissolved, and the dendrites showed the characteristics of the acute alteration." The same author says further: "The axonal reaction to us is an, as yet, unexplained complex of manifestations, which as far as we know now, seems closely related to the circumstances under which we recognize also myelin decay."

Lastly, Dr. Meyer points out that the pathological histology of this condition is characterized not by any general tissue involvement, but by the invasion of sets of cells, this distinguishing it from degenerations of a secondary or retrograde type. The typical changes found in brains of paretics are absent.

At the time these changes were analysed the material used was from cases of end stages of depressive disorders in the devolutional period, various alcoholic psychoses complicating the senium, and certain exhaustive infective states, and lastly, cases of idiocy.

While the clinical features are fairly definite, still I do not feel that there is a clear and definite correlation of clinical signs and autopsy findings, and Dr. Meyer clearly recognized this when he said: "we must admit that we are still far from knowing all the possible histological steps in the process" (*Brain,* 1901), and he also admits that the symptoms are rather vague.

Bonhœffer, Starlinger, John Turner, Worcester, Ballet, and Hoch have all described somewhat similar conditions, but there seems to be a general haziness in regard to the exact clinical features, and though it seems highly probable that there is a symptom-complex of a fairly definite character in which certain pathological conditions are found post-mortem, it would seem that we should endeavour to exclude all symptoms that might have a definite etiology quite apart from the symptom com-

plex. I do not know that any bacteriologic work has been done to discover, if possible, a cause for the presence of diarrhœa, or further, whether there was an examination of the bowel wall histologically to determine its exact condition. Again, it seems to me that, in all these cases the brain and cord, with the posterior root ganglia and sympathetic ganglia, should be examined micro and macroscopically. The examination of certain areas of cortex I do not believe to be sufficient when such an amount of uncertainty exists.

The value of such work is perhaps most apparent to the neurohistologist and pathologist, but it will also be of great value to clinical psychiatry, and I feel that Dr. Somers and others who undertake this work, in addition to keeping up arduous routine, deserve our warmest commendation, and the section on nervous and mental diseases of the Canadian Medical Association are fortunate in having had Dr. Somers show them the character of work that may be done by a busy first assistant in a large State Institution. I wish to again thank Dr. Somers for his paper.

CALCIFIED FIBROMA OF THE ORBIT.

J. N. Roy, M.D.
Opthalmologist to the Hotel-Dieu, Montreal.

Case Report.—C. Edmond, aged fourteen years, was brought to the Hotel-Dieu on the 20th of February, 1907, for a tumour of the left orbit. His mother told us that from the beginning of the year 1904, her son had complained of slight pains in the left eye, as well as weakness of vision. This eye until then had always been straight, but from that time it had a tendency to diverge. The symptoms increased up to October of the same year when slight exopthalmos and limited movements of the eye were noticed. An oculist, who then had him under his care has had the kindness to transmit to me the following notes.

"On examination I found and removed a growth of the size of a hazel-nut, situated at the inferior external angle of the orbit. The operation was followed by considerable infiltration and insensibility of all the orbital tissues, and pronounced exophthalmos."

"Some days later, neuro-paralytic keratitis came on, and as it was impossible to save the eye, excision was performed. The insensibility was so complete that this excision was practised without cocaine or chloroform and caused no pain."

"After three or four weeks, the tissues had not regained their sensitiveness, or their normal size."

Read before the Canadian Medical Association, Ottawa, June, 1908.

"In presence of these trophic and vaso-motor troubles of the eye-ball and of the contents of the orbit, I inferred a serious lesion of some branches of the trifacial and of the sympathetic. These nervous lesions, however, not being definite, I preferred to wait before emptying the orbit."

"As the patient was poor, and could not afford the expense of living away from home, he returned to the country with instructions as to the necessary treatment, and a request to return later."

"The neoplasm was entrusted to a confrére, for histological examination but unfortunately, the report was never furnished me."

"During his first stay at the hospital, the patient was subject to attacks of coughing, tightness of breath and tachycardia, which I believed were of nervous origin."

During the two years that followed the two operations, the swelling of the orbital tissues, mentioned in the preceding report, constantly increased. The patient complained of sharp pains and a feeling of fullness of the orbit, which was complicated by daily headaches. There was always a sanious discharge from the wound, in spite of antiseptic washes repeated twice a day. The tumour in developing produced a considerable ectropion of the upper eyelid. During the last four months preceding our consultation, the parents observed that the child was nervous, pensive, wept for nothing, became angry easily, and was not as intelligent as formerly. The appetite was good, but the sleep was broken, and involuntary movements of the hands and feet occurred at times.

Because of these symptoms, and the slow but continued increase in size of the growth, they decided to have a second examination made.

The family of our little patient was composed of thirteen children, four of whom died young of infectious diseases, the others possessed excellent health. There was nothing of interest from a hereditary point of view, and no history of neoplasms of any kind.

The child had never been ill, but at the age of three years was scalded by boiling water on the eyelids and the left side of the neck. These burns however, healed without complications.

On examination, we observed a large tumor which more than filled the left orbit. This tumor extended about a centimetre above the upper rim and about two centimetres below the lower edge of the orbit. The eyebrow was pushed up, and a sero-purulent liquid escaped from the cavity. The neoplasm, which was slightly mobile gave on palpation a sensation of resistance. The eyelids had a violet tint, due to venous dilatation. All this region had preserved its sensitiveness.

An absolutely normal condition of the right eye existed. Refraction gave us 120° —0.75V-1.

With the rhinoscope, on the right side we found a hypertrophic rhinitis, and on the left a small spur on the septum and a polypoid hypertrophy of the head of the middle turbinal. The patient had never had any discharge of pus from the nose. There was nothing to note concerning the pharynx, the tonsils or the palate. Some decayed teeth added nothing of interest to this observation.

The diaphanoscope allowed us to observe that on the right, the pupil was luminous and the cheek translucent. On the left the maxillary sinus was equally transparent which assured us that this cavity had not yet been invaded by the orbital tumour. Normal condition of the frontal sinus. Slight hypertrophy of the sub-maxillary glands, equally pronounced on both sides. The preauricular glands on the left were not increased in size. We found no organic disease, no syphilis or tuberculosis.

It was comparatively difficult for us to make a clinical diagnosis as to the nature of this tumor, which the microscope alone could do, whether it was bony, cartilaginous or fibrous, sarcomatous or benign. From a practical point of view, ablation remained the only possible treatment and the operation being decided upon, took place on the 23rd of February.

First Operation.—The patient chloroformed and the field of operation made aseptic, we made an external canthotomy the length of a centimetre, the incision being curved slightly downwards. The conjunctiva, which covered the entire extent of the neoplasm, was cut in the superior and inferior pseudo-culs-de-sac, and the eyelids and the skin of the temple were carefully dissected with the scissors. The tumor was then entirely exposed to view; we could raise it in part, after having detached it from the orbital rim, upper, outer and lower. By aid of the curette we finished the removal of everything that remained at the bottom of the cavity, going as deeply as possible in the direction of the optic nerve. These manœuvres, moreover, were facilitated by the presence of a very thin capsule which entirely surrounded the fibroma, and which is almost always met with in this variety of neoplasm. As the periosteum appeared totally invaded, we accordingly carefully took away all that had escaped our first curetting, and the orbital arch which was intact received our special attention. The tumour weighed 55 grammes. The operation was followed by a thorough cleansing of the orbit, some sutures at the outer canthus, and a light compress dressing. The results following the operation were absolutely normal. We were pleased to notice in the days that followed that the left eyebrow was in line with the right. The orbital cavity, cleaned daily with peroxide of hydrogen, suppurated a little, although the fungous granulations were removed by

curetting or cauterizing. Nevertheless, it gradually became covered with a solid granular bed which permitted us to consider our patient cured at the end of two months. All the symptoms shown before the operation had disappeared; the general health was better, and the intelligence developing. Although cured, we are not fully satisfied with our first operation, since it had been impossible for us to concern ourselves with the æsthetic part. The neoplasm in developing had caused the eyelids to undergo a forced dilatation; and, as after the ablation everything sunk in the orbit, they had a tendency to retract to the point of leaving this cavity largely open. As, besides the ungraceful appearance, the patient would have been continually exposed to exterior infection, we performed on the 20th of April a partial tarsorrhaphy.

Second Operation.—Again chloroformed, we detached circularly the eyelids at their base, on a level with the bony circumference of the orbit, and we continued this separation on the forehead and cheek in order to be better able to mobilise them. After cutting the inner two thirds of their meibomian lips, and completing the hemostasis, we applied some sutures, exercising great care in the ciliary field. A protective dressing finished this easy little intervention.

During the following days, we gave antiseptic washes to the orbital cavity, passing by the part not sutured; and, as the secretion was dried up by the end of May, the patient was allowed to leave the hospital absolutely cured. We recommended, however, repeating the washings from time to time, by means of a syringe, in order to maintain the cure.

Dr. Dupont, who was kind enough to undertake the examination of the growth sent me the following microscopic report.

"Histological examination of a tumor of the size of a hen's egg, developed in the left orbital cavity."

"The sections were made of a muscle of the eye, and of the tumor, properly speaking. Particularly on those prepared by the Van Geisen and Weigert method, we observed that this mass was formed exclusively of connective tissue cells and bundles of fibres, which cross each other in every direction. These fibres were coloured by the fuchsin in a characteristic pink, and the nucleus of the cells a blue colour."

"Numerous little centres of calcification were scattered through all its thickness. These deposits of calcareous salts had assumed a colouring of deep black from the ferric-hematoxylin."

"A band of fibrous tissue, the greater part of whose fibres were arranged in parallel lines, separated them from the ocular muscle."

"We found included in the tumor, a nerve, whose elements presented evident signs of degeneration, but it did not seem to be large enough to be the optic nerve. The muscle was also slightly sclerosed. On the

other hand, the arteries and veins in the neighbourhood did not appear affected."

"In a word, it is a fibroma of slow development with many centers of calfication."

For a long time, some opthalmologists have denied, very wrongly, the possibility of the development of a genuine fibroma in the orbital cavity. In reality, all fibres carpeting or dividing the orbit can be the starting point for this tumor, which can originate from the periosteum, from the sheaths of the muscles, from the optic nerve, or from Tenon's capsule.

Although the fibroma of our patient was calcified in certain parts, this observation remains no less interesting from the point of its rarity.

The evolution of this neoplasm equally deserves our attention, as well as the nervous phenomena which accompanied it.

The exophthalmos, the decrease of vision, and the divergent strabismus, lead us naturally to believe that it had its origin in the fibrous bed at the bottom of the orbit, because, aside from this ocular projection, the eyeball had retained its normal position.

The lack of sensitiveness, and the swelling of the retrobulbar tissues which followed the first operation, and which continued even after the enucleation are also facts which we have never seen noted before.

We know that in certain cases the boundary line which separates fibroma from sarcoma is still very indefinite, however, in this case the very slow progress of the disease allowed us to foresee that we were in the presence of a benign tumour. Moreover, the microscope confirmed our opinion, and allowed us to observe that the histological preparation showed fibroma with islands of calcareous infiltration; and it was impossible to find any sign of sarcoma.

Although the walls of the orbit were not altered by contact with the neoplasm, nevertheless it caused nervous symptoms which disappeared after the operation.

Of all the means at our disposal for the aesthetic repair of the orbital cavity, we believed it best to choose the partial tarsorrhaphy, which was completely successful.

As the cure has continued now for a year, we can hope that it is permanent.

COMPOUND COMMINUTED FRACTURE OF THE SKULL: OPERATION: RECOVERY.

BY

WILLIAM J. DEROME, M.D., Surgeon to the Hotel-Dieu, Montreal.

The subject of the present paper is 30 years old. The personal and the family history are unimportant, with the exception that one of his maternal grand parents was an alcoholic.

Read before the Canadian Medical Association, 1908.

On May 18, 1907, he came to see me, complaining at times, of very severe headaches in the right frontal region, accompanied by epileptiform convulsions. He stated that when 8 years of age, he was kicked in the head by a horse and was under the care of his family physician for six weeks, until recovery from his injury.

On examination, his skull showed in the front parietal region, an irregular depression, about four inches long by three quarters of an inch wide. On deep pressure, over this area, there was no pain, nor pulsation.

Up to the age of 15, development was normal, but the child showed no aptitude for study, complaining of fatigue at the least application to his lessons.

At 15 the headaches became more frequent especially during hot weather, while working in the fields. These headaches went on increasing in frequency and in intensity up to the age of 18, when in September 1896, the first attacks of epilepsy manifested themselves. Initial cry, spasmodic movements, biting of the tongue, frothing at the mouth, loss of consciousness, such were the clinical features of the attacks, according to the story told by the mother of the patient. It was impossible to ascertain if the convulsions began in any group of muscles or one side of the body more than the other, as the facts were gathered from witnesses who were more than novices in the art of medicine. Nevertheless the possibility of Jacksonian epilepsy was thought of. During the two years following the inception of the epilepsy, the convulsions recurred at more frequent intervals, 3 or 4 a week.

From the very onset of the malady, the patient was put on large doses of bromides which diminished the number of attacks but not their intensity. After two years' treatment, there was an interval of eight months of apparent good health, but by degrees the attacks returned and became more violent.

The physicians previously consulted advised surgical intervention, only to meet with a persistent refusal, as the parents were satisfied with the results of the medical treatment.

In 1907, I also advised operation, but also met with the same determined refusal.

On the 8th January, 1908, the patient returned complaining of more aggravated and more numerous attacks. His mother who accompanied him, said that during these attacks, her son became uncontrollable and appeared to have gone mad. A great change indeed could be seen in the attitude of the patient, who seemed duller and more stupid, hardly answering questions and scanning his words. His eyes were staring and haggard. His occupation, that of carpenter, had become not only difficult for him but even dangerous. He had been threatened with dis-

missal if he could not be cured as his fellow workmen did not consider it safe to work with him on account of his strange ways.

I again counselled operation, as the only hope, this time with better results.

Some days later the patient entered the Hotel-Dieu of Montreal, the operation took place on the 18th of January, with the assistance of Dr. Eugene St.-Jacques, to whom I am very much indebted for his skilful co-operation.

A horse-shoe shaped incision was made over the fronto-parietal region and the injured area exposed. While dissecting the skin flap, two small openings were met with, in the angles of a depression, triangular in shape, measuring two and a half by one and a half inches, from which escaped in spurts, a clear transparent, serous liquid similar in all respects to the cerebro-spinal fluid, and about two ounces in quantity. A probe introduced into one of these openings, enabled us to map out a pouch outside the dura-mater of the volume of a large egg.

This cyst was strongly adherent to the skin and to the osseous border of the depression. Compressed by the scar tissue the cyst depressed markedly the brain substance of the fronto-parietal region. The skull was trephined at the upper angle of the triangular depression and at its base, and the two openings joined together by the means of a rongeur forceps. The edges of the traumatic area were thickened in parts, to a depth of three quarters of an inch, result of a *hypertrophic osteitis,* while the central portion was thinned out, *atrophic osteitis,* and showed a solution of continuity at two of its angles. In the lower frontal region there was found in the diplœ a cavity communicating with the cyst: *a true cystic hypertrophic osteitis.*

At this point I removed small spicules of bone from the internal table of the skull. The adhesions were broken up, the dura-mater and the cyst resected the callus thinned out with the rongeur and the wound closed, without any attempt at compensating for the loss of osseous substance. A small idoform gauze drain alone was left in the wound during 48 hours.

The third day following the operation there was a marked improvement in the condition of the patient. He told all comers, his headaches were cured. Since then he made an uninterupted recovery. He left the hospital on 29th January, twelve days after the operation and received his last dressing at my office, on the ninth of February. On the 15th February, as a result of fatigue and of overheating he had apparently an attack of *petit-mal.,* not losing consciousness. Since one month after the last dressing the patient has been able to work every

day at his trade, is happy, has had no further convulsions, nor does he suffer any more from headaches.

I would conclude:

1. That with rare exceptions, cases of injury to the skull, followed by late permanent nervous symptoms should be treated surgically.

2. That the statistics and my own limited personal experience tend to prove that in such cases surgical intervention is almost always followed by the happiest results.

3. The sooner the operation is done after the appearance of the nervous symptoms, the more favourable the outlook.

FRACTURE OF THE NECK OF THE RADIUS.

BY

J. APPLETON NUTTER, B.A., M.D.

R. E. B., aged 18 years, was in June, 1907, doing a "hand stand" on the arms of a rickety chair, i.e. he was supporting his body in the air by his hands, which grasped the arms of the chair. The chair suddenly toppled and he fell to the floor. The left arm gave way as it touched the floor and the elbow was flexed acutely, the whole arm being twisted inward so that the lower arm was directed backward, the palm resting on the floor. In this position the radius and ulna were crossed and when, following rapidly, his body lurched forward, great pressure was brought to bear on the upper end of the radius. The hand was palm downwards on the floor, fixing the lower end of the radius; the upper end of the radius was lying across the ulna and pressure against it caused this to give way at the neck. A click was felt, and on rising the elbow was found painful but capable of being fully flexed and extended. Supination and pronation caused however considerable pain and there was great tenderness over the head of the radius.

An X-Ray was taken at the Royal Victoria Hospital, which revealed a fracture of the neck of the radius immediately below the head and a tiny chip of bone lying free, probably from the olecranon.

The arm was put up in full extension by plaster, apparently in full supination. This was kept on 19 days, and on removal very little motion was at first got; this improved gradually. A distinct ring of callus could be felt below the head of the radius.

On July 19th, the elbow was again injured. A second X-Ray at the Royal Victoria showed that some more small fragments had been knocked off the olecranon. A bandage was applied in slight flexion, and after a time motion gradually returned. The small fragment from the olecranon could be palpated in the triceps tendon at the back of the joint and caused some pain on extending the elbow. This was removed

through a small incision by Dr. Lauterman in February 1908, relieving the pain and adding somewhat to the motion. The arm to-day shows some thickening of the olecranon, 5-10° limitation of flexion, 15 to 20° limitation of extension, full pronation and supination, but with some roughness. It is still somewhat weaker than normal. The ring of callus at the seat of fracture has disappeared.

The subject of fracture of the head and neck of the radius has of late received considerable attention at the hands of orthopedic surgeons. It seldom occurs. Flörcker, in von Bergmann's Festschrift (Deutsche Zeitschrift für Chirurgie) claims that there are but 23 undoubted cases in the literature, and of these but 14 were unassociated with fractures of other parts. This association with lesions of the humerus and ulna has long been insisted on (Scudder), but it is thought that the fracture will before long be recognized as not very uncommonly occurring alone, and will be considered in the routine examination of elbow joint injuries.

The fracture is, as a rule, produced by indirect violence, a fall upon the palm of the hand being the commonest single cause, (Erving, in the American Journal of Orthopedic Surgery for April, 1908, which see for references to the literature). Hoffa, in his Lehrbuch der Fracturen und Luxationen, lays stress on direct violence, especially a fall or blow on the radial side of the forearm.

Symptoms and Diagnosis.—Pain and tenderness over the radial head, crepitus, difficulty with pro- and supination, with retention of flexion and extension, are characteristic. The head of the radius does not usually rotate with the shaft, at least not as it does normally. The X-Ray confirms the diagnosis, and later there appears a ring of callus just below the head.

The incomplete luxation of the radial head seen in children, fracture of the external condyle and sprain of the external lateral ligament are the three lesions with which fracture of the radial head and neck is most often confused. In their differentiation the X-Ray is of decided value, as it is often difficult to palpate the radial head on account of swelling of the soft parts.

Anatomy and Pathology.—The head of the radius is cupped to fit the capitellum of the humerus, against which it is braced by the capsular and external lateral ligaments and on which it pivots. About one-third of its margin is engaged in the lesser sigmoid cavity of the ulna, held tightly there by the orbicular ligament. It is thus seen that the head cannot be much displaced. In fractures of the radial neck the head generally remains fixed while the shaft is more closely approximated to the ulna. The supinator brevis and the biceps alone are related to this part of the bone. The biceps is inserted into the bicipital tuberosity,

while the supinator brevis is inserted into the posterior and external surfaces of the shaft between the oblique line and the head of the bone. It is obvious that when the neck of the radius is fractured we can have little control of the head.

The epiphysis appears at five, according to Gray, and unites at eighteen. Separation at the epiphyseal line appears to be very rare even in children, owing to the protection afforded by the orbicular ligament, which as it were bandages the epiphyseal junction. Backward dislocation of both bones of the forearm, and fractures of the external condyle and of the coronoid process are the commonest among complications. The posterior interosseous nerve, which winds around the radius close to the scene of action, is rarely injured.

Treatment.—Numerous methods have been suggested. In any case we cannot do much to influence the position of the broken-off head, short of an open operation. Fortunately its lack of muscular attachment and the presence of the orbicular ligament render it unlikely to be markedly displaced. In general the treatment advised (Erving) is that of right angled fixation for two weeks in plaster, the forearm midway between pronation and supination. Passive motion should then be begun, and should loss of function ensue from malposition or exuberant callus, the displaced fragment should be removed or the whole head excised. Excision of the head has been followed by excellent results. Without it, cases where considerable displacement exists have an unfavourable prognosis.

My thanks are due to Dr. Lauterman for permission to report the case, and to Mr. McNeill and especially Dr. Girdwood for their excellent radiographs.

THE OPHTHALMO-TUBERCULIN TEST: TWO SEVERE REACTIONS.

BY

HANDFORD MCKEE, M.D., R. P. CAMPBELL, M.D., and P. G. WHITE, M.D.,
Montreal General Hospital.

In reviewing the already extensive literature of the ophthalmo-tuberculin test, one is struck with the difference of opinion expressed regarding its use and dangers. While a large number of observers have practised it with no serious results, and unconditionally praise it, others, who have seen it followed by severe conjunctival and other ocular symptoms, advise caution in its use. Described first as a test for tuberculosis by instilling a solution of tuberculin in the healthy conjunctival sac, its use has been considerably widened. Especially as a diagnostic

measure in obscure ocular conditions the ophthalmo reaction has been used extensively.

Painblau reported a positive reaction in two cases of tuberculosis of the conjunctiva. Brunetière obtained a positive result in three cases of kerato-iritis, interstitial keratitis and exudative keratitis. Aubaret and Lafon employed it in seventeen eye cases and considered it would be of value in ophthalmology.

At the Ophthalmological Society of Paris, in October last, Kalt reported a case of long standing sclero-iritis where a transitory aggravation of the symptoms followed the test. Later, he reported the evil effects upon another case of sclero-iritis. The reaction was a severe one and the accompanying iritis and corneal opacity lasted one month. Terrien reported having seen a young girl with a marked granular condition of the conjunctiva. Three months previously the ophthalmo-reaction had been tried in her eye. In the discussion of these cases Morax said, tuberculin drops could make noticeable a latent tuberculosis of the conjunctiva, but he would not go so far as to see in Terrien's case the ophthalmo test as the cause. In Kalt's first case Morax believed the severe aggravation of the symptoms to be a coincidence. For diagnostic purposes the subcutaneous method seemed to him more suitable, because the general reaction not only shows the presence of tuberculous foci in the organism, but the reaction in the eye shows the localization there.

At a meeting of the Berlin Ophthalmological Society in January of this year, Wolff-Eisner pointed out some contraindications to the ophthalmo test. He believed it was contraindicated in tuberculous eye conditions, as such eyes were highly sensitive. Where tuberculosis of the eye was suspected a solution of 1-100,000 should be used. Contrary to most observers, he did not believe light forms of conjunctivitis a contraindication. Collins expressed surprise that so few cases of injury to the eye, by this test, had been reported, and stated, where a patient had only one eye the test should not be tried. Aufrey applied the test in an eye with tuberculosis of the conjuctiva, but had experienced no severe reaction. Adams believed trachoma a contraindication, while Citron stated the test should not be used in eyes with high myopia, or in the eyes of scrofulous children. He went still further and stated the test had no place in ophthalmology, as it should only be used in sound eyes.

Brons, from Axenfeld's clinic, reported four cases where increase in severity of the symptoms followed the opthalmo-reaction: one was a case of parenchymatous keratitis, two of chronic iridocyclitis, and one

of scleritis. Brons, after some experience with the test, states, he would not, as Kalt and Pes, unconditionally condemn the test, but believes in it we have a very worthy measure of diagnosis, adding the important proviso, if it is used with caution. While he believes the test of value, he prefers the subcutaneous method. Later, Waldstein from Elsching's clinic, reported his observations. His conclusions are that in many cases of eczematous conjunctivitis, follicular disease of the conjunctiva, and chronic catarrh, there is no doubt the ophthalmo reaction runs a much severer course than in the normal eye, and that the reaction differs greatly in differently disposed people. The question of the therapeutic value of instillations of weak solutions of tuberculin he leaves without expressing an opinion.

Stuelp, in the same number of the *Monatsblatter,* reports in detail nine positive ophthalmic cases where the reaction was severe. From his experience he would go farther than most men who condemn it, and issues a warning against its use in ophthalmic cases.

Parker closes his paper with some conclusions which are rather sweeping:

(1) The Calmette ocular tuberculin test is of as great diagnostic importance as any other single test.

(2) A positive reaction is indicative of a tuberculous focus somewhere in the body.

(3) The consensus of opinion seems to be against using the test in an eye not wholly normal.

(4) The ocular reaction is especially valuable for ascertaining the tuberculous nature of cases of phlyctenular keratitis and conjunctivitis, episcleritis and scleritis, chronic iritis, iridocyclitis, interstitial keratitis and choroiditis.

(5) The test in the hands of various observers has given such uniformly excellent results that its value is practically assured.

The discussion of this paper took the usual form of for and against the test.

Treacher Collins said he and and his colleagues had had a good deal of experience with the Calmette test, and found it not altogether devoid of unpleasant symptoms. He had had one case (a muco-purulent conjunctivitis) in which the reaction lasted quite three weeks, and two of his colleagues had had cases of choroiditis follow such applications.

Whether the ophthalmo-tuberculin test applied even in normal eyes is wholly free from danger is a question. More information is needed.

That there have been serious results following the test cannot be denied, but whether those untoward results were the fault of the test or the way it was carried out remains to be seen. Ample evidence can be produced, both for and against the reaction. We have had an opportunity of following the test here and have found it, on the whole, reliable and free from danger. Our experience has been wholly with cases with normal eyes.

In over two hundred cases we met with only two where severe reactions were seen. One was a case of membranous conjunctivitis, the other a muco-purulent conjunctivitis followed by phlyctenular keratitis.

Case I.—F. O., aged four years, osteomyelitis of the tibia, received a drop of 1 per cent. solution of tuberculin in the right eye on May 19th last. Twenty-four hours later there was marked œdema of the lids, the conjunctival surfaces of which were covered with a membrane, with purulent discharge. Continued bacteriological examination failed to reveal any pathogenic organisms. This fact helped to relieve our anxiety in spite of the severe clinical condition of the eye. The eye remained in this condition for ten days. Upon May 29th cold compresses were applied and the eye began to improve rapidly. Three days later the eye was quite well. The reaction here, as may be judged, was a very severe one and for some days gave us a great deal of anxiety.

Case II.—M. L., aged 16 years, tuberculous hip, received on May 14th last a drop of 1 per cent. tuberculin solution in the right eye. Very slight injection of the palpebral conjunctiva followed. One week later the test was applied to the left eye. The day following there was a well marked reaction, which twenty-four hours later had increased with a muco-purulent discharge.

At the end of one week there was still a profuse muco-purulent discharge which began now to lessen. Three days later there was noticed at the corneo-sclerotic margin a well marked phlyctenule.

Under the ordinary treatment the conjunctivitis cleared up, and the phlyctenule disappeared, so that on June 18th, three weeks after the instillation of the tuberculin, the eye was quite well.

It will be noticed the age of *Case I* was four years. Bing reported the conjunctival reaction sometimes followed by violent inflammation and other unpleasant sequelæ, which have made him cautious in its use and in cases of scrofulous children to forego it absolutely.

The results of the ophthalmo-tuberculin test, on the whole, are as yet contradictory. Nevertheless, in the normal conjunctival sac in adults, uniformly satisfactory results from a diagnostic point of view may be obtained. With caution the severe conjunctival inflammations may be

eliminated, and then the practical value of the test will be assured. On the other hand, Wolff-Eisner's suggestion as to the strength of the solution 1-100,000 to be instilled in an eye where tuberculosis of the eye is suspected needs to be heeded. It seems, too, pretty well established that the test should not be applied in an eye involved in any process of disease, with a $\frac{1}{2}$ or 1 per cent. solution because of the danger of excessive reaction likely to follow.

ACCESSORY EYELID.

BY

GEO. H. MATHEWSON, B.A., M.D.

In October 1904 a young lady 21 years of age, consulted me in regard to a small tumour, which was situated at the inner angle of her left eye, between the margins of the eyelids.

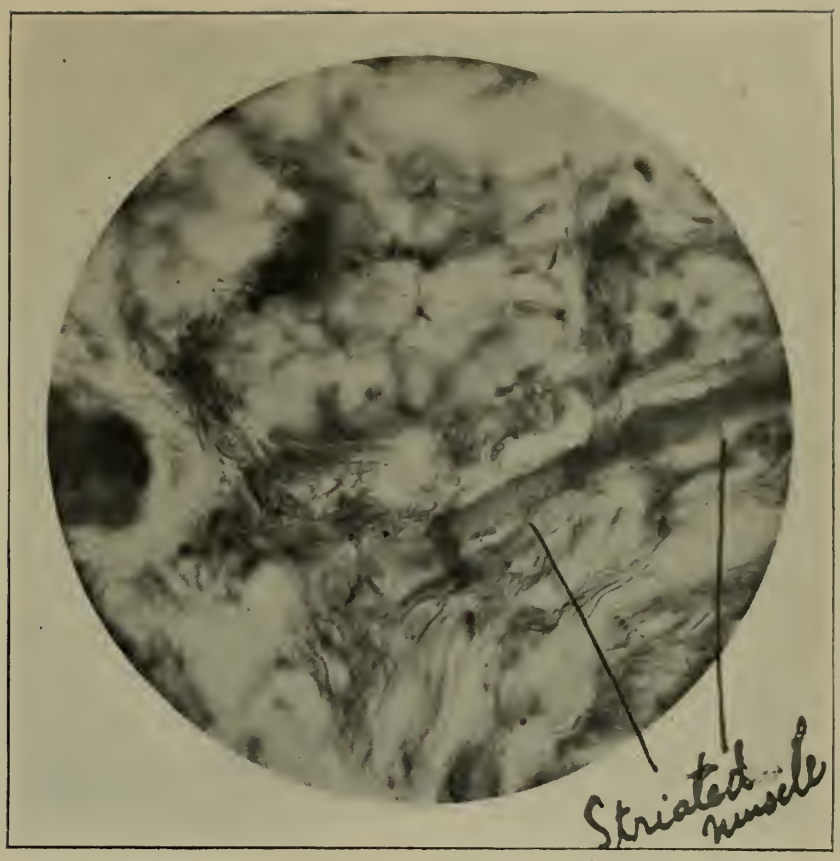
She stated that this tumour had been present from birth, and had grown but little since. It gave rise to no pain or discomfort, and it was simply because it was disfiguring that she had determined to have it removed.

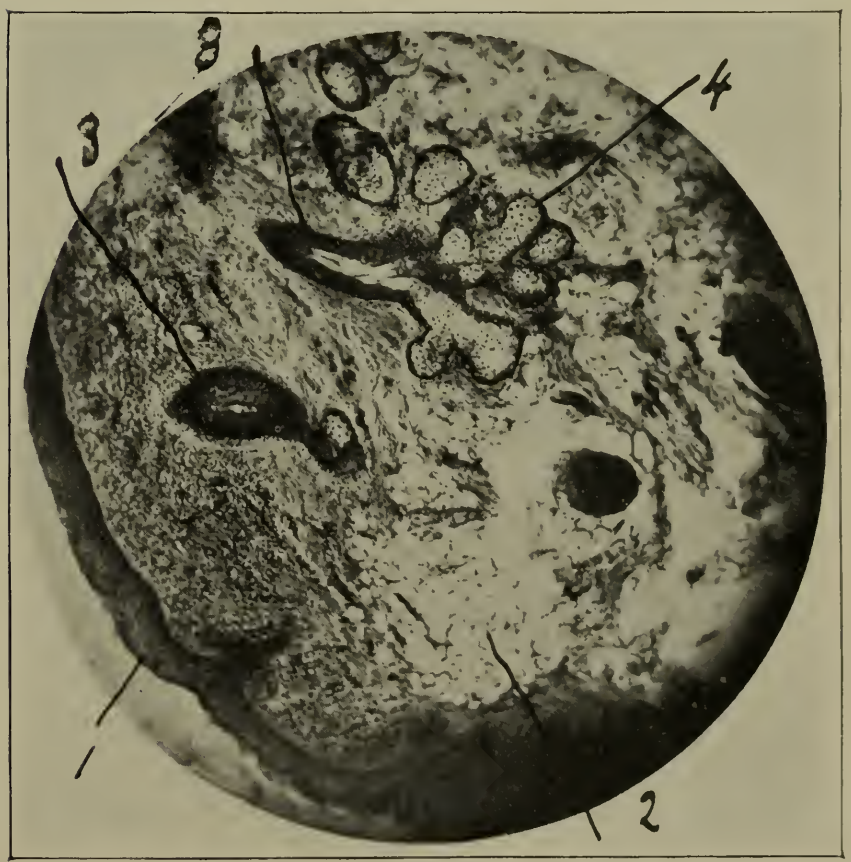
On examination one saw that a small round tumour occupied the inner angle of the conjunctival sac of the left eye, completely hiding the caruncle. It was of the same colour and consistency as the skin. By means of a probe it was found to spring from the upper lid, by a somewhat slender pedicle, at a point just to the nasal side of the lachrymal punctum, so that it was freely movable in all directions. The pedicle was cut through close to the margin of the upper lid by a couple of snips of a fine pair of scissors, and in a few days the cosmetic result was perfect.

The tumour measured 3-16 of an inch in diameter, and on histological examination proved to be of much the same nature as the eyelid. The epithelium which surrounded it was of the stratified pavement variety like that of the skin. The bulk of the tumour was composed of fibrous tissue and fat, with many large sebaceous glands and hair follicles. In some parts striated as well as non-striated muscle was found.

The accompanying microphotographs made for me by Mr. H. H. Wootton, show (1) the general structure under low power; (2) the striated muscle under high power.

A somewhat similar tumour has been described by J. W. H. Eyre in the Trans. of the Ophthalmological Society of the United Kingdom—Vol. XVIII, pp. 186.





1. Epithelium. 2. Fat. 3. Hair follicles. 4. Sabaceous gland.

MEDICINE IN CANADA.

BY

M. CHARLTON.

II.

Dr. Blanchet was one of the first doctors to publish a medical work in Quebec; it was called, "Recherches sur la Médécine ou l'application de la Chémïe à la Médecine." This work was published in 1800. Another work "Is Typhoid Fever Contagious" showed great originality. He took much interest in education and was the father of the first law on education; he also published a pamphlet of forty pages, called, "Appel au Parlement Impérial et aux habitants des Colonies anglaises dans l'Amérique du Nord, sur les prétentions exorbitants du Gouvernement Executif et du Conseil Législatif de la Province du Bas-Canada."

In 1806 Dr. Blanchet with four other French Canadians founded the first French newspaper in Canada, called "Le Canadien." All these men were active and somewhat troublesome members of the House of Assembly. It followed, therefore, that the columns of this newspaper were devoted to the French party and led the House of Assembly. Although the political tone of the paper was temperate and by no means aggressive, it certainly helped to widen the breach between the two races, which, unhappily, at this time was beginning to show itself.

The state of the Government was a particularly stormy one under Sir James Craig, and such complications arose at this time as were afterwards to find vent in the rebellion of 1837. Eight months after the arrival of Sir James Craig, Blanchet and his four friends were dismissed from the militia on the ground of being proprietors of a "seditious and libellous publication."

In 1810 their paper was seized by the Government, and two days later three of the proprietors, namely, Blanchet, Bedard and Taschereau were arrested at Quebec. This proceeding was due to the advisers who surrounded Sir James Craig; for although these men had given a great deal of trouble, they were by no means traitors. We find that in 1812 Dr. Blanchet was acting as Chief Medical Officer of the Province.

In the same year that the journal and the medical lectures were inaugurated, a medical society was formed at Quebec, and in one of the minutes at a meeting of this society, these three events were referred to as "remarkable in the scientific history of Quebec." This society was known under the name of the Quebec Medical Society, and its formation seems to have happily escaped the spirit of division which

so marked that of the Montreal Society, which was formed at a later date. The first president of the society was Dr. Joseph Morrin; Dr. C. N. Perreault was vice-president, and Dr. Xavier was secretary. The laws of the medical society were published in 1830. Dr. Joseph Morrin had taken his degree at the London and Edinburgh universities. He rose to the highest eminence in his profession; was twice elected Mayor of Quebec, and, as we shall see later, took part in establishing the Beauport Lunatic Asylum. Morrin College was founded by him. In 1831 he was elected honorary librarian to the Literary and Historical Society of Quebec, being the second doctor thus elected.

This Literary and Historical Society played an important part in the history of Quebec and was formed two years before the medical society. It was founded by His Excellency, the Earl of Dalhousie in 1824. The society's aim was to encourage literature and science, but in their transactions other curious and interesting matters found their way and, thanks to the "Ordinance" which was passed in 1790 at Quebec, by which all the ancient documents of the French *régime* had been preserved, many of these important documents appeared in the Transactions. From time to time many well known members of the medical profession contributed papers to this society. Dr. Joseph Skey, Inspector of Hospitals, was chairman of the Natural History Section. Dr. William Kelley, surgeon R. N., contributed several interesting and valuable papers. There is one "on the Medical Statistics of Canada." In another paper "On the Climate of Canada," he quotes Humboldt as saying, "Quebec has the winter of St. Petersburgh and the summer of Paris." In one of the later numbers of the Transactions there is a paper by Dr. Archibald Hall, on the Georgian Springs. A great deal of attention was given at this time to the different mineral springs throughout Canada, and the analysis of the water was often published in full.

A very full account is also given of the epidemics which appeared between the years 1775 and 1786 at Mal Baie and then rapidly spread to other parts of the province. To a student of Canadian archæology the Transactions are fascinating, and one feels tempted to notice many other interesting details.

This society flourished for many years and then lapsed into obscurity, but was restored to its former place by Dr. Anderson who became its president and contributed many papers on Canadian history. Before coming to Quebec, Dr. Anderson was the Medical Officer of the Port of Pictou, Nova Scotia; during that dreadful summer of 1847, when typhus fever spread throughout Canada to such an alarming extent.

The earliest vaccination in Canada was performed at Quebec in the year 1768, by a Mr. Latham, Surgeon to the King's Regiment of Foot. This was just forty-seven years after the first inoculation took place in London. Twenty-nine years later the practice of inoculating had spread throughout Canada. It was not an unusual thing for several inoculators to travel together throughout certain districts, their arrival being announced by the local papers, and always the announcement was made that the poor would be inoculated free of charge. The inoculation was, as rule, performed during the winter or spring months. Although the introduction of inoculation into Canada was not attended with the antagonism it elsewhere created, yet at times letters appeared complaining of the practice. In 1812, a Mr. Freedling wrote to the Kingston *Gazette* complaining of a doctor who, having no one to practice upon, "induced one of his daughters to be inoculated for small-pox, by which, the disease devastated the neighbourhood." In 1815, A. Macdonald, Secretary of the Institution of Inoculation, published a phamplet on "Instruction for Vaccine Inoculation." Some years later we find the newly established Matenity Hospital at Montreal, advertising in the local paper that they had fresh vaccine and that country physicians might be supplied with fresh vaccine by addressing a letter to Mrs. Buchanan, matron of the University Lying-in-Hospital, enclosing the sum of five shillings. The proceeds from these sales went to the support of the institution.

In those early days of the nineteenth century we were indebted to Quebec for the development of the sciences, literature, and art; nor must we forget that Quebec had the first hospital in North America, the famous Hotel Dieu, founded in 1639; the second newspaper in Canada which was established in 1764, the Quebec Gazette; and the first school in Canada, which was founded in 1632; and this brings us back to the French *régime*. This school was founded by Father Lejeune, and was the beginning of the famous Jesuit College. The first pupils were a negro boy and an Italian boy. The medical profession had established the first medical journal and the first Medical Society in Canada. Besides Dr. F. Blanchet others were bringing out medical works. Dr. Michel Underwood, who was a graduate of the Royal College of Physicians of London, and practised at Quebec, published a work on "Traité sur les Maladies des Enfants," in 1803.

In 1826 Dr. E. Pascal Taché published a work on "Studies in Hygiene and the Development of Physical Strength." The numerous diseases, or rather plagues, which at this time were sweeping over the country prompted Dr. Taché to bring out this work.

The Board of Immigration authorities published "An Act for the

relief of the indigent sick emigrants" in 1823. Such were some of the first ventures in medical literature in the beginning of the nineteenth century in the old city of Quebec.

In 1827 Dr. Charlton Fisher, who was at this time, editor of the Quebec *Gazette,* obtained the medal, which was offered by the committee of subscribers to the Wolfe and Montcalm monument of Quebec, for the most appropriate inscription, in the fewest words in Latin, French, and English.

The inscription prepared by Dr. Fisher is as follows:—

HUNC LAPIDEM
Monumenti in Memoriam
Virorum illustrium
WOLFE ET MONTCALM
Fundamentum
P. C.

Georgius Comes De Dalhousie
in Septentrionalis Americae partibus
ad Britannos pertinentibus
Summam rerum, administrans.
Opus per multas annos praetermissum,
Quid duci egregio convenientius
Auctoritate promovens exemplo stimulans,

Munificentia fovens.
Die Novembris XV.
A.D. MDCCCXXVII.
Georgio IV Britannorum Rege.

John Charlton Fisher, LL.D., had been invited to Quebec by His Excellency Lord Dalhousie, to take charge of "The *Quebec Gazette.*" He was secretary and afterwards president of the Literary and Historical Society of Quebec.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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WHAT SHALL BE DONE WITH THE CONSUMPTIVE?

Two months ago we referred in these columns to the necessity that meets us in Canada of caring for the advanced cases of tuberculosis, and we suggested there that a commission should be appointed upon the subject. That the question is a live one may be truly stated: two daily papers in Montreal reprinted the article, and laic comment upon it has reached our ears. We do not mean to assert that our suggestions were the best possible, but we do state with confidence that this is one of the most burning questions before us at the present time—the more burning because its solution is utterly overlooked. Sometimes, there is no place for an advanced consumptive to die, let alone live, unless the jails be accounted suitable. Even if the case be not as bad as this, in nine-tenths of the cases there is no place where he can die without being a menace to his fellows. If to-day the inhabitants of the Tracadie leper colony were scattered over the city of Montreal at random, what a holding-up of hands and what a shrieking there would be from a badly frightened city! Yet to-day there are, we dare to say, fifty people who are suffering from advanced tuberculosis in Montreal, who will, in the next month infect more people, and cause more people to die than would the Tracadie lepers. Each one of these advanced cases is a busy centre of production of tubercle bacilli: according to his social status and according to the care he and his frends exert, he infects none, few or many of the people within his reach. Can we flatter ourselves that more than three or four of the probable fifty are innocuous? The writer knows of one who is living in a house with ten

younger people; that is, ten people are sitting as it were "smoking on the gunpowder-keg," and nobody worries about it; if we kept kegs of gunpowder lying around at random, we would straightway build a powder magazine, and consider that the money so spent was wisely spent, but we have never yet attempted to collect those "kegs of gunpowder" (each one with the lid off), and put them safely out of reach of the children. If Canada wants good citizens, here is a way of buying many who are now growing up within her boundaries, who are fated to die in the next few years, *whose lives can be bought* by segregating the cases that will infect them. Statisticians have a queerly practical way of estimating in dollars the worth of a human being to his country: a man of twenty-one is worth some thousands of dollars to his community; if we must be "business-like," look at it merely from this standpoint, and every young life that is prevented from being lost, pays the interest on a hundred thousand dollars, more or less! It is the proud boast of the British subject that his country will expend the cost of a war upon him alone, if necessary: the outlay here required is less, will buy bigger results, and honour demands equally that it be made.

The idea of a Governmental commission seems to us best to meet the requirements. We are in the midst of commissions upon civil service, upon labour difficulties, upon lighthouse boards, and what not; they appear to the onlooker to be able to extract the information that is wanted, and a commission upon the housing of advanced consumptives could very quickly amass much information upon ways and means. The ideas to be kept before such a commission are: (1) Can the Federal Government justly undertake such a mission? (2) Is there any legal barrier in the way of their assuming such a charge? (3) If so, how can it be removed? (4) What would be the cost? (5) How should such moneys be distributed? (6) The construction of a central bureau to govern all such institutions, and so on. The consideration of these questions does not require medical men; the final technical details do, but until they are reached we would prefer to see two or three live men of affairs set at the task.

We recognize that municipalities and even provinces can undertake partially such a labour; but the municipalities that are willing to do most are generally enlightened enough to need it least; it is sleeping congregations like the city of Montreal that need most to be aroused.

THE EX-DEAN AND GOVERNOR.

On July 11th, at a meeting of the Board of Governors of McGill University, Dr. T.G. Roddick was elected a trustee for the members of the

Royal Institution for the Advancement of Learning and a governor of McGill University. The occasion of this change in Dr. Roddick's status was his retirement from the position of Dean of the Medical Faculty, after a service of six years. This elevation to the governing board of the university is the highest distinction to which a graduate may aspire, and it came to Dr. Roddick, easily and naturally by reason of his long service in the cause of sound learning, in the profession of surgery, and a life-time spent in ameliorating the misery of his fellowmen. Nor may we omit to mention his public service as surgeon to our soldiers in the field, and representative for eight years in the Dominion Parliament.

Of equal importance was the management of his conduct in private and professional life, which always made— and still makes—for urbanity, good temper, and reasonableness. We are permitted to make public a copy of a resolution passed by the Faculty of Medicine of McGill University, at an adjourned meeting held June 8th, 1908: "The members of the Faculty of Medicine desire at this meeting to place on record their high appreciation of the services of Dr. Roddick to the Faculty and to the University, during the thirty-six years in which he has been connected with the teaching staff, and especially during the past six years when he has so ably filled the post of Dean. During his tenure of the deanship, among other advances, the Faculty of Bishop's College has been absorbed by this university, the faculty of medicine has assumed a closer relationship with the university at large; the dental department has been instituted, and the medical course has been lengthened from four to five years. In all of these Dr. Roddick has taken a very active part. During the whole period of his connection with the teaching staff the faculty desires at this time to recognise the great earnestness, capacity, and tact, which Dr. Roddick has invariably shown in forwarding the best interests of the faculty and of the university."

Dr. Roddick's long experience which has brought to him wisdom is yet,—and, we trust, for many years will be,—at the disposal of the university. In the more or less private life to which he has chosen to retire, he may look for a continuation of that affectionate regard which he has always received from all graduates and other friends.

INFANT MORTALITY IN MONTREAL.

For the first six months of the present year the death rate among children in Montreal under five years, instead of diminishing, is higher than it was last year. The total deaths of children under the age of five to the end of June last year were 2,021, being 44.96 per cent. of the whole city death rate. This year for the same period the deaths

were 2,358 and the percentage was 48.62 of the whole number of deaths. This gives an increase for the six months of 3.66 per cent.

It was thought that if anything the record this year would show an improvement, but in spite of the care taken to improve the quality of milk supplied, and notwithstanding all the advice given by the Board of Health, the death rate goes on increasing.

When classified into nationalities the deaths give the same results. The number of French-Canadian children under five years who died last year up to the end of June was 1,582, making the percentage 54.86 of their whole death rate. For the six months this year the deaths of French-Canadian children numbered 1,798, and the percentage was 58.49 of the whole.

As regards other Catholics of Montreal last year the deaths of their children numbered 200 for the six months and the percentage of the whole was 35.52. For the six months of this year the deaths were 229 and the death rate 37.05 of the whole.

Last year the report shows the number of children of Protestant parents who died during the six months was 183, and the percentage of their whole death rate was 32.91. This year for the same period the deaths numbered 242, and the percentage was 38.01 of the whole.

The death rate among children of Jewish parents is the highest of any nationality for Montreal. The figures for last year to the end of June show the deaths were 56 and the percentage of the total Jewish mortality reached the high figure of 56.56. The mortality is even higher this year. The number of Jewish children under five who died was 89, and the percentage, as compared with their total death rate, was 60.95.

The preceding information is contained in a return prepared by Dr. Ward, statistician to the Board of Health, and is not especially gratifying. Dr. Ward is of the opinion, however, that this excessive mortality is due in part at least to the illegitimate children who are born in Montreal, amongst whom the rate of mortality is notoriously high. There is nothing in the return to indicate the extent of this illegitimacy or indeed that it is higher than in other cities. The matter is well worthy of investigation.

Dr. T. G. Brodie, has been appointed professor of physiology in the faculty of arts and medicine of the University of Toronto. He will also have charge of the teaching of physiology to the students of the Ontario Veterinary College. Dr. Brodie, was educated at King's College School, London; St. John's Cambridge, and King's College, London, and has held the following appointments in London: Director of the

research laboratories of the Royal College of Physicians and Surgeons, professor superintendent Brown Animal Sanitary Institution, University of London; professor of physiology, Royal Veterinary College; lecturer on physiology London School of Medicine for Women; lecturer in physiology St. Thomas Hospital Medical School. Dr. Brodie has accepted the professorship. His coming to Toronto is a gain to Canadian Medicine.

We cannot but think that the British Columbia Medical Association acted wisely in declining to join in a proposal to form a Western Medical Association. Instead, the association decided to affiliate with the Canadian Medical Association, and a committee was appointed to deal with the details of such arrangements. Upon professional grounds as well as upon the wider ground of political expediency, it is desirable that all should be done which may be done to develop a community of sentiment and interest between the East and West.

Reviews and Notices of Books.

BIER'S HYPEREMIC TREATMENT, by WILLY MYER, M.D., and PROF.

The three methods of producing hyperemia by obstructing the venus return by cupping glasses and by hot air are fully described, and the directions are given so plainly and the important points are so clearly put that anyone, after carefully reading this book, should be able to carry out the treatment in a correct and satisfactory manner. Every step in the different methods is fully illustrated, and finally, a chapter is added on conclusions and the results obtained are put very clearly be-

fore the reader, giving intelligent idea of the theory, its application and the results to be expected.

The treatment by hyperemia has not yet fully settled down into its proper place, that is to say, its real value is probably not yet fully determined. On the one hand are enthusiasts who see in it an easily applied "cure-all," and on the other hand there are those, who, after a brief trial or on theoretical grounds turn it down as of little value. The method, however, is being very widely tried. It is simple in application, painless and inexpensive, and would seem undoubtedly to be a therapeutic agent of value. It was first used in tuberculosis of joints chiefly. Its use has been extended by Bier and his followers to acute infected conditions, and, in many cases, with beneficial results.

This is hardly the place to enter into a discussion of its modus operandi. It might be mentioned, however that there are those who, while admitting its efficiency, question whether the good results are due altogether to simple hyperemia, and suggest that possibly they may be due in part to the development of anti-bodies in the affected area, which are the real cause of the good results obtained.

The authors and publishers have done their work well. We can heartily commend the book to every practising physician and surgeon.

HANDBOOK OF MEDICINE AND THERAPEUTICS, by ALEXANDER WHEELER and WILLIAM R. JACK, M.D. Third Edition. Edinburgh: E. and S. Livingstone, 1908.

ADENOMYOMA OF THE UTERUS, by THOMAS STEPHEN CULLEN, of the Johns Hopkins University and Hospital, Baltimore. Illustrated by Herman Becker and August Horn, Philadelphia and London. W. B. Saunders Company, 1908.

This is the most recent and probably the most complete contribution to the literature of a subject which in recent years has been receiving much attention from gynaecological pathologists. The author is the

same who produced the well-known monumental work on Cancer of the Uterus eight years ago. That work stamped Dr. Cullen as a most patient laborious and conscientious investigator. Adenomyoma as the name implies is a variety of myoma or fibromyoma of the uterus ,in which glandular elements are found in the substance of the growth, often quite remote from the surface of the myometrium. Previous to this book of Cullen's the most important work on the subject is von Recklinghausen's published in 1896.

In 1903 Cullen reported 22 cases of adenomyoma. That they are not rare is shewn by the fact that out of a total of 1,283 cases of myoma examined by him in 13 years, 73 or about 5.7 per cent were adenomyomata. That the glandular elements thus found in a proportion of myomata, and that sometimes quite remote from the endometrium, even in a subperitional relation, are really extensions, or an outflow from the uterine mucosa, Cullen has conclusively shewn by innumerable serial sections he has made of the tumours he has examined. This is not, however, the opinion of von Recklinghausen and many others who believe that in the vast majority of cases the glandular elements are derivatives of the Wolffian duct. The presence of blood in these gland spaces, sometimes thick, sometimes chocolate-coloured, proves that these displaced glandular elements, sometimes quite remote from their origin, the uterine mucosa, participate in the menstrual process.

The occasional development of adeno-carinoma from these isolated glandular elements explains the supposed cancerous digeneration of uterine myoma.

In chapter XXIII the author relates and describes a most interesting and instructive case, and concludes his report as follows:—" We have in many instances been able to trace the extension of the gland elements in the adenomyoma from the uterine muscosa. In this case we have an adenomyoma of the uterine horn and the stroma-elements surrounding these glands have taken on a sympathetic decidual development—just exactly as does the uterine mucosa at times when tubal pregnancy exists. This is another point convincing us that even where we are unable to trace the direct continuity between the uterine mucosa and the gland elements in an adenomyoma, they are in all probability derived from the same source, because they react in precisely the same manner as does the normal uterine mucosa; and, furthermore, they pour out their quota of meustrual blood at the period, as is evidenced by the fact that many of the glands are filled and markedly dilated with blood either recent or old." Adenomyoma of the uterus is usually a diffuse thickening of the uterine muscle with glandular elements variously distributed through it. There may however, be at times isolated portions carried either to

the outer or inner surface of the uterus. It is not rarely associated with single or multiple fibromyomata. Clinically the author believes the diagnosis of adenomyoma of the uterus to be relatively easy, but when we learn that the symptoms are hæmorrhage and pain, this does not appear to be very clear. He however, emphasizes the fact that the bleeding is usually confined to the period, which may ultimately be prolonged and become continuous, that there is much pain, referred to the uterus at the period, and that there is usually no intermenstrual discharge of any kind.

The book is exquisitely printed in large clear type and is copiously illustrated with 68 beautiful reproductions of the exquisite drawings of Becker and Horn, the artists employed in the gynæcological department of the Johns Hopkin's Hospital. W. G.

Clinical Bacteriology and Haematology for Practitioners. By W. D'Este Emery, M.D., B.Sc., London. Clinical Pathologist to King's College Hospital and Pathologist to the Children's Hospital, Paddington Green: sometime lecturer on Pathology and Bacteriology in the University of Birmingham. Third Edition, pp. XXIV+, 252, Demy 8-Vo. London. H. K. Lewis, 136 Gower Street, W. C., 1908. Price 7s. 6d. net.

The third edition follows on the heels of the second, which was produced but two years ago. The chief additions are in the preparation of bacterial vaccines; there are some slight changes introduced in the matter of blood cultures, with which we fully agree: the method described by the author, we know by personal experience, to be a very simple and very efficient one. Further details on lumbar puncture are added, and some few new illustrations. To those who do not know Dr. Emery's work, it may be said that it is just what it claims to be—a book for practitioners. To the trained laboratory man, there is a fulness of detail that may seem unnecessary, but it is not so, for it is written for men who may require to be told every slightest step in a procedure. Each process is minutely told in one, two, three order, and the point which will appeal most to the average reader is that it is not so much written from the standpoint of the laboratory to the ward, as it is from the outlook of the ward to the laboratory: in other words, the clinical side of the book and the clinical sympathies of the author are emphatic. With regard to the illustrations, the plates of bacteria are all of average, and some are of far more than average excellence—notably perhaps, plates III, IV and VI. It is a pleasure to commend Dr. Emery's book to anyone who has not previously made its acquantance.

THE PRINCIPLES OF PATHOLOGY, Volume 1., General Pathology, By J. GEORGE ADAMI, M.A., M.D., F.R.S., Professor of Pathology in McGill University, Montreal. Octavo, 948 pages, with 322 engravings and 16 plates. Cloth, $6,00 net. Lea and Febiger, publishers, Philadelphia and New York, 1908.

For several years this distinguished author has been known to be engaged upon a work on general and special pathology, the advent of which has been awaited with eager anticipation by a large circle of students and scientific workers. Professor Adami is widely known throughout the scientific world as an original thinker and a leader of progressive thought. He has been a prolific and suggestive writer. Among his many contributions to the advance of medical science his brilliant theories upon heredity, which were formulated at length in his article on this subject in Osler's System of Medicine; his constructive work in the confused region of the classification of tumours, and his thoughtful studies upon inflammation rank among the best achievements of the day. He is familiar to the large body of former students of McGill University, whose privilege it has been to sit before him in the lecture room, as a teacher of judgment and wide experience: It is gratifying to find that this volume more than fulfils the expectation of all. The first glance at its contents shows one that it meets a real need of the day. Here, as in no other work of which we know, there is unfolded in the light of modern research and in a simple logical and comprehensive manner, the whole story of those principles which underlie the causation of disease and the actions and reactions of the body in diseased states to which such a wealth of information has been added by the investigations of recent times. The originality of the author's treatment of his subject is equalled only by the scholarly breadth and fairness of the views which he expresses, and the book is written with a freshness of style that at once commands the attention of the reader. One passes from the account of the structure and chemistry of the cell to the romance of inheritance, from the causes of disease to the doctrines of immunity, from the theories of formation, to the enunciation of the laws of retrogression and death, with an absorbing interest, and with that feeling of delight which the mind receives from the focussing of scattered knowledge into orderly concepts. And one takes away from its perusal a general over-sight of the scientific advances of the day, and a suggestion of the avenues still untrodden that forms an inspiration to honest work.

In an admirable preface the key is given to the scope and general purpose of the work and of the many points of difference which distinguish this from books of its class. The author has felt that "what

is needed in a text book of pathology is not the mere record and description of phenomena, but the attempt to analyze those phenomena in an orderly manner." This text book proves to be a training in medical thought. " I knew of no recent attempt in our language," he writes " to place before student or physician in an orderly and reasoned manner, the principles of pathology, the science as distinct from the practice of medicine, the science upon which that practice is, or should be, based." Therefore, throughout the book, principles are first dealt with and under these the necessary details are grouped. Such a logical treatment of the subject brings one back in all cases to the cell and the changes undergone by it as the basis of all pathological study. Therefore an introductory section upon cellular physiology and pathology occupies the opening chapters. The enormous breadth that the subject of general pathology has assumed in recent times is touched upon, and the present hopelessness of any one man's being able adequately to keep abreast of all the sciences ancillary to medicine. The writer has but made the attempt to call attention to the intimate bearing of these kindred sciences upon medicine, and in addition to draw attention to the important work now being accomplished by English speaking writers. This last with the two-fold object of encouraging the student to apply at first hand to those sources of information that are available to all, and to stimulate him to original research by the knowledge that work of a high order is being done by others in the same hospitals and laboratories and with the same opportunities as his own.

The book is divided into three sections. The first is occupied with a prolegomenon, a detailed study of the histology, physiology, and chemistry of the cell and ultimately of the complex structure of the biophore or molecule of living matter with its unsatisfied affinities (diagrammatically expressed by the side-chains of Ehrlich), and ever changing dissociations with old, and combination with new ions, leads up to the explanation of the processes of growth and of reserve force, of cell multiplication and cell and tissue differentation, of adaption, variation, and individual development, of fertilization, and finally of parental and individual inheritance. It is a fascinating recital, with much that is new in its pages, profusely illustrated with original diagrams, graphically and simply told, and prepares the mind for the difficult problems of the defences of the organism in infection and disease which occupy the later portion of the book.

The second section considers the causes of disease. These may be inherited or acquired. Under the causation of morbid conditions of uterine and parturient acquirement nearly sixty pages are devoted to the elucidation of the subject of monstrosities and abnormalities. A much needed classification is given, the clearest and the most logical in

the literature. Postnatal causes of disease are classified as exogenous and endogenous, the former being external noxæ of non-parasitic or parasitic origin, the latter poisons generated within the body, either through the internal secretions of thyroid, parathyroid, pituitary bodies, adrenals, ovaries and testes, the foetus (acting upon the mammary gland) etc., or through disintegrative intoxications, as in self-digestion, impaired metabolism from whatever cause, or obstructed elimination of the products of metabolism. Bodily states as direct and indirect causes of disease, predisposition and susceptibility, are also considered.

The treatment of the exogenous causes of disease well illustrates the broad lines on which the book is written. Thus chemical poisons are considered, not according to their actions as irritants, corrosives etc., (for this is the function of a textbook of toxicology) but according as they affect the organism into those acting upon the nervous system, those inducing vomiting etc. Again, the bacterian, the protozoan and metazoan parasites are not dealt with in detail (for this one must turn to a bacteriology or parasitology) but are described as a class, the more important varieties being described for illustrative purposes, but not in categorical enumeration.

The third and last section dealing with the morbid and reactive processes, occupies more than one half of the book. It is divided into two parts. The first, the morbid and reactive processes proper, treats of inflammation, the reaction of the system to infection, and the modern views upon immunity. An interesting historical introduction to this subject is followed by a description of the various orders of immunity, of the toxins, antitoxins, phytotoxins, enzyme-action, precipitins, agglutinins, cytolysins, opsonins, aggressins etc. The mechanism of cytolysis and bacteriology are reviewed, and Metchnikoff's views upon phagocytosis, and Ehrlich's side-chain theory of immunity are discussed at length.

The second part of this section is devoted to the subjects of regeneration and tumour formation, and the degenerations and necroses. In a book which is strong at so many points it is difficult, perhaps invidious to single out any one portion for special comment. Yet the chapters on new growths seem to us perhaps the most excellent part of the work. In spite of a new and rather difficult terminology, the classification proposed is simple and meets the confusion existing and the necessities of the case.

The book is well and profusely illustrated. It is completed by a good index.

The future of this work is already assured. The sections on heredity, inflammation, and classification of tumours are but elaborated re-editions of previous publications of this author which have already

made their mark and have stood the test of time. The book as a whole is epoch-making, and the need which it fills assures its immediate success. It should be on the shelves of every general practitioner as well as scientific student, in the collections of nursing institutions, and we may add, should form a part even of the general library; in particular, it will be a joy to every trained pathologist in the world.

LANDMARKS AND SURFACE MARKINGS OF THE HUMAN BODY, by LOUIS BATHE RAWLING, M.B., (Cant.), F.R.C.S. (Eng.), Assistant Surgeon Demonstrator of Practical and Operative Surgery, Late Serior Demonstrator of Anatomy at St. Bartholomew's Hospital: late Assistant Surgeon to the German Hospital, Dalston, etc. With thirty-one illustrations. Third Edition. Demy 8-Vo. pp. VII + 96, price 5s. net. London. H. K. Lewis, 136, Gower-Street, 1908.

The second edition appeared in 1905, so that it is evident that the book is a favorite one. It is always a pleasure to see work turned out by one who knows his craft, and everyone admits that surgical anatomy is one of the strong points of the English schools; thus Mr. Rawling's book bears the mark of a man who is conversant to the last degree with his subject, and the book is concise and definite. The paragraphs are short, and the information required is given as directly as possible. The plates are excellent, the markings are clear and arrest the eye at once, and too much is not crowded into one plate. The appendix contains a useful table of lengths of various passages, and tubes, a table of the weights of organs, both of which we think should be given also in the metric system, and a table of ossification and epiphyses of the limbs. We gladly commend this book.

Medical News.

BRITISH COLUMBIA MEDICAL ASSOCIATION.

The ninth annual meeting of the British Columbia Medical Association was held in Vancouver on August 20th and 21st. The president, Dr. J. M. Pearson of Vancouver, presided.

The meeting was well attended, some seventy-five in all signing the register. A large number of visitors was also present, including Dr. Joseph Price, of Philadelphia, Dr. G. S. Ryerson, of Toronto, Drs. J. B.B. Eagleson, A. E. Burns, Canfield, Peterkin, of Seattle, and Dr. A. H. Coleman, of Tacoma.

A very interesting programme was presented and fully discussed. Dr. Joseph Price read an able paper on the advancements of Abdominal and Pelvic Surgery, which was much appreciated by all present. The special committee appointed at the last meeting to report on school inspection and hygiene, particularly with regard to the manner in which it is taught in our public schools, presented an exhaustive and valuable report. Much credit is due to Dr. W. D. Brydone-Jack and the other members of the committee for their valuable contributions to this subject.

The question of the formation of a Western Canada Medical Association was fully discussed and the following resolution was passed:—Resolved, that in the opinion of this Association it is inadvisable, and the secretary be instructed to notify the promoters of the scheme to this effect; the feeling of the meeting being that the affiliation of this Society with the Canada Medical Association was desirable and that the multiplicity of the inter-provincial societies might interfere with the Dominion Association.

A letter was also read from Dr. Lafferty of the College of Physicians and Surgeons of Alberta. Subject,—the formation of a joint Board of examination for the four western provinces of the Dominion, whereby candidates for license to practice will be able to register in the Provinces of Manitoba, Saskatchewan, Alberta, and British Columbia, on passing the one examination. The following resolution was adopted; resolved—That this Association does not approve of the scheme of reciprocity with regard to registration with the Provinces of Manitoba, Saskatchewan, and Alberta.

The question of affiliation with the Canada Medical Association was also discussed and the idea was endorsed by the association and the executive committee was given power to work out the details and to carry it into effect.

Under the head of school hygiene it was decided to memorialize the Government, and request them to appoint a medical adviser for the education department, so that the question of hygiene and its teaching in our public schools might be carried out under the supervision of a person specially qualified on this subject.

A special committee which was appointed at our last meeting to revise the constitution and by-laws presented their report. The only important change was the making of the membership fees permanent, that is members to continue in good standing must pay their fees annually whether in attendance at the meeting or not.

The following were elected officers of the Association:—President, Dr. C. J. Fagan, Victoria, Vice-President, Dr. Glenn Campbell, Van-

couver, Treasurer re-elected, Dr. J. D. Helmcken, Victoria, Secretary re-elected, Dr. R. E. Walker, New Westminster.

In response to a pressing invitation to hold the next annual meeting in conjunction with the State Associations of Washington, Oregon and Idaho, the next meeting place will be Seattle, where a joint meeting of the above Associations will be held, the exact date to be fixed later, probably some time in August 1909.

MONTREAL GENERAL HOSPITAL.

At the semi-annual meeting of the governors of the Montreal General Hospital, Dr. F. G. Finley, the secretary, read the medical superintendent's report which stated that during the half year ending Jnue 30, 1,572 patients had been admitted to the wards, as compared with 1,677 for the corresponding period of last year, while 1,561 had been treated to a conclusion as compared with 1,704 in 1907, and 153 patients had died, 75 of them within three days of admission as compared with 142 and 66 for corresponding period of last year. The slight decrease in the number of the patients treated was explained by the fact that in the corresponding period of last year the wards were much overcrowded. This year the work had been lighter, as evidenced by the fact that the average number of patients per day was 200.

Work in the out-door department continued to show the same progressive growth evidenced in the last few years; 7,360 new cases for treatment were presented as compared with 7,290 for corresponding period of last year. The total number of consultations had been 25,467, as compared with 25,388 for the same period in 1907.

In the president's report it was stated that the treasurer's report showed a revenue for the six months ending June, 30, 1908, of $61,523, an increase over the same term of last year of $328. The ordinary expenditure for the same period amounted to $64,784, being over $2,000 in excess of receipts, and an increase of $862 over last year. Apart from this there was an expenditure of $16,481 on account of the new power house and laundry.

The treasurer had also received in unrestricted legacies the following: From the estate of late Mrs. Grace Redpath, $4,000; from late Mr. G. B. Carter, K.C., $2,500; from late Hiram Rutenberg, $100. He had also received $2,000 in memory of late H. W. Thornton, for pathological research.

The endowment fund had also been increased by a donation of $1,000

from Mrs. P. Caverhill, and by $22,182 from estate late Miss Orkney, making the endowment fund at present $160,365.

DENTAL ASSOCIATION.

At the annual meeting of the Dental Association of the Province of Quebec, it was resolved to ask the Legislature to permit members to vote by mail, and also to ask for an amendment of the charter by which dental students who follow their course at the dental school may or may not register with a dentist. Other proposed amendments were agreed to: One to have the dental examination in September, instead of October, and the other to ask for authority to have the annual meeting changed from September to October.

The election of officers resulted as follows: Dr. P. J. Berwick, Montreal, president; Dr. A. Landrier, Quebec, vice-president; Dr. Dubeau, Montreal, secretary; Dr. C. F. Morrison, Montreal, treasurer; Dr. G. W. Oliver, Montreal, registrar.

Members of the council: Dr. J. H. Bourdon, Montreal; Dr. J. W. Fournier, St. Hyacinthe; Dr. F. J. Broomfield, Sherbrooke; Dr. J. H. Springle, Montreal; Dr. F. H. Stevenson, Montreal; Dr. Scott-Ives, Montreal.

ROYAL VICTORIA HOSPITAL.

Monthly report for August, 1908:—Patients admitted, 328; patients discharged, 294; patients died, 15. Number of ambulance calls, 95. Medical, 96; surgical, 141; ophthalmological, 27; gynæcological, 45; laryngological, 19. Out-door department—Medical, 1,207; surgical, 688; ophthalmological, 294; gynæcological, 174; laryngological, 498; total, 2,861.

The annual meeting of the District of St. Francis Medical Association was held in Sherbrooke on Wednesday, September 9th. The officers for the ensuing year are:—President, Dr. E. J. Williams, Sherbrooke; 1st Vice-president, Dr. F. A. Gadbois, Sherbrooke; 2nd Vice-president, Dr. M. MacKay, Windsor Mills; Secretary-treasurer, Dr. W. W. Lynch, Sherbrooke; Council—Drs. Austin, Pelletier, M.L.A., Bonfill and Rioux.

Dr. J. F. Rioux presented a paper on "Medical Ethics," dealing with subject in a general way and bringing to the minds of the members present many important points which were too often ignored by many practitioners. A committee was appointed to draw up a programme for the year.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

WILLIAM J. MAYO. "Ulcer of the Duodenum." *Jour. A. M. A.*, August 15th, 1908.

Mayo states that the surgical invasion of the upper abdominal region has gradually enabled us to replace theory with facts, and fallacious clinical observations have given way before actual demonstration of diseased conditions. One of the most striking illustrations of this newer knowledge is the discovery that three-fifths of all gastric and duodenal ulcers are situated in the duodenum. Until within recent years gastric ulcer has been considered the chief lesion, while reference to a duodenal location has been infrequent. He considers the differential diagnosis between duodenal and gastric ulcer and states that in duodenal ulcer the pain and tenderness, as a rule, extends from the mid-line to the right; aggravation induced by food comes on several hours after a meal, and the patients suffer from a peculiar "hunger pain" when fasting. Unlike gastric ulcer, duodenal ulcer rarely undergoes carcinomatous degeneration. Mayo has seen but four apparently primary carcinomas of the duodenum. In two of these the origin was uncertain, and in but one did it seem probable that the cancer had developed from an ulcer In five cases, however, he has known gastric cancer to develop on the edge of a duodenal ulcer which involved the stomach at the pyloric ring. The surgical treatment of chronic duodenal ulcer will usually consist of gastrojejunostomy, preferably by the "no loop" method.

In regard to the curative value of operation for ulcer, he states that in his experience the surgical treatment has been most satisfactory. So far as possible, he has traced patients with duodenal ulcers operated on in 1906-7. These two years were chosen because this choice eliminated some of the early operations in which the diagnosis was doubtful and the technic imperfect, and it prevented the inclusion of the recent cases that the shortness of time since operation would render valueless to statistics from the standpoint of cure. One hundred and nineteen patients were operated on in 1906-7, and 106 were traced. Of these 87, or 82 per cent., were cured; 10, or 9.5 per cent., improved; and 6, or 5.7 per cent., unimproved, making cured and improved 91.5 per cent. The operative mortality in the whole number of cases was 2.8 per cent.

MEDICINE.

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON, AND HOWARD

ANDREW MACPHAIL, M.D. "Health Resorts in Canada." London *Practitioner*, July, 1908.

There are no "health resorts" in Canada which may be well compared with those in older communities. Life is not sufficiently organilized, and Canadians do not fully appreciate the luxury of a leisurely convalescence. There is not yet a class of idle rich who require to divert themselves from their amusements by a period of illness. Occasional patients of this kind, who are attracted by the allurements of a health resort, prefer to obtain a change of scene and of climate at the same time. Accordingly they join the stream of travel to the United States and to European countries.

This is not to say that Canada is devoid of certain initial advantages, such as a dry, cold climate in winter, a dry, warm climate in summer, upland forests of pine, and foul-smelling springs of water. Whilst these resources might well be considered in any discussion of climatology, they are not in themselves, unless made available by art, sufficient to constitute a resort where health may be regained.

And yet there is much to attract and interest a visitor from England, who is not too ill to be benefited by a journey over seas. The voyage across the Atlantic is in itself a remedial measure. The best ships of the great transatlantic Canadian Steamship Companies are entirely satisfactory. There is a certain intimacy of life amongst the passengers, and the saloons are free from the turmoil which one finds in travelling to United States ports. There is also a trace of the old-fashioned kindness which used to be a feature of life on ship-board, when voyages were longer than they are in these days. Besides, the ocean passage occupies only four days, and after that there are a thousand miles of sailing up the still waters of the St. Lawrence before Montreal is reached.

Certain of the hotels in Canada have much to recommend them to persons who are more or less invalid; and it is common enough for Canadians to spend a week or two in them for purposes of recuperation. The reason is that these hotels are designed primarily for the comfort of travellers making long journeys, and are in reality part of the railway equipment. There is thus a continuity of management and a sense of familiarity with all the hotels belonging to the same system. For example, one of the Railway Companies owns hotels in Quebec, Montreal, Winnipeg, Banff, Vancouver, and Victoria, which are especially

reserved for the comfort of travellers and not for their exploitation. An infirm person is passed on from one to the other with a kindly introduction and mention of his peculiar needs.

The Château Frontenac, in Quebec; the Place Viger, in Montreal; the Royal Alexandra, in Winnipeg; the Hotel Vancouver, in Vancouver; the Empress Hotel, in Victoria, belong to the same system, which owns, in addition, many smaller places, chiefly in the mountains. These are mainly used as health resorts, and two of them entirely so, namely, Banff and Caledonia Springs.

Banff well deserves a place amongst the health resorts of the world. It is easily accessible by a main line of railway. The hotel accommodation is excellent. There are good sanatoria for the invalid. The elevation is 4,521 feet. There are few spots in the world with a more complete aggregation of scenic features, within so small a compass—snow-covered mountains, warm valleys, a river with falls and still pools, sweet springs, ice-cold, and mineral springs with a temperature of 123. Of the Banff Hot Springs, the official analyst supplies the following report:—

Fixed solids in grains, per gallon:—

Chlorine (in chlorides)	0.42 grains.
Sulphuric Acid (SO_3)	38.50 "
Silica (SiO_2)	2.31 "
Lime (CaO)	24.85 "
Magnesia (MgO)	4.87 "
Alkalies (as Soda, Na_2O)	0.62 "
Lithium	A decided trace.

Each gallon contains dissolved sulphuretted hydrogen to the amount of 0.3 grains (equivalent to 0.8 cubic inch).

In the vicinity of Banff mountain-climbing is well organized. Swiss guides and sheltering châlets are provided, and a summer may well be spent amongst the various hotels. Throughout the Rocky Mountains and the Selkirks, at intervals of about 50 miles, the Canadian Pacific Railway Company has provided small but excellent resorts. Some of these are the Mount Stephen House, Glacier House, and Sicamous Hotel, at the entrance to the Okanagan Valley, which enjoys a climate much like the south of England. From all these points trails lead up the valleys, and living is made most agreeable for those who require to gain strength and health.

Caledonia Springs, situated near to Montreal, have been of good repute for more than a century in the treatment of rheumatism and its allied manifestations. A competent physician is in residence, and

every convenience is provided for invalids, including baths of all kinds. Analysis of three of the springs yields the following results:—

	Caledonia Springs, Ontario, Canada.		
	Duncan.	Saline.	White Sulphur.
Chloride of sodium	122·50	64·41	38·43
" potassium	·31	30	·23
" calcium	2·87	—	—
" magnesium	10·34	—	—
Bromide of sodium	—	·17	10
" magnesium	·24	—	—
Nitrate of sodium	—	—	—
Iodide of sodium	—	·01	Trace
" magnesium	·02	—	—
Sulphate of sodium	—	05	—
" potassium	—	—	·18
" magnesium	—	—	—
" lime	—	—	—
Carbonate of magnesium	8·63	5·17	2·94
" lime	1·26	1·17	2·10
" soda	—	1·76	4·56
" lithia	—	—	—
" baryta	—	—	—
Phosphate of lime	—	—	—
Iron	Trace	Trace	Trace
Silica	·22	·41	·84
Alumina	Trace	Trace	·03
Carbonic acid	5·01	—	—
In 10,000 parts of water, grs.	151·40	73·45	49·41

In the same class as Caledonia Springs should be mentioned Ste. Catharine, near Niagara Falls. Of a less pretentious nature are St. Leon and Abenakis in Quebec.

Powerful forces are in operation to create a system of sanatoria in every Province for the care and treatment of patients suffering from tuberculosis. But these are more or less charitable in their intent; and they are not much frequented by the well-to-do. The Sanatorium of Gravenhurst in Ontario is the best known of these. For many years an attempt was made to establish in Ste. Agathe a resort for persons suffering from tuberculosis. This pretty village in the Laurentian Mountains is 60 miles north of Montreal; and at the same distance to the south is Saranac Lake, where Dr. Trudeau has his well-known sanatorium. The fame of Saranac Lake was rather too much for the Canadian village, and patients with tuberculosis are no longer provided for at Ste. Agathe. Dr. Kemp's sanatorium at Ste. Agathe has been converted into an inn, which is an admirable resort in autumn and winter.

St. Andrews in New Brunswick, on the Atlantic Cast, the Thousand Islands in the St. Lawrence above Montreal, and the Muskoka region in Northern Ontario are great pleasure grounds and favourite resorts

for the enfeebled. They are all easily accessible, and in the early autumn are at their best. The convenience of invalids has been fully considered in the travelling and hotel arrangements. Another place of note is Murray Bay, below Quebec, where is the excellent Manoir Richelieu. There one may have the advantage of sea air and mountain air combined in a place of much natural beauty.

For those who are unable to endure a long ocean voyage, there are the vast inland lakes of Canada, which are navigated by steamers as perfectly appointed as those which cross the Atlantic. These lakes are in reality inland seas of pure, cold water at an elevation of 600 feet. The effect upon the invalid is at once stimulating and sedative, and, as a result, rest, appetite, and sleep are promoted.

There are also peculiar conditions in the prairie country beyond the lakes, which make for recovery. From May to October the intensity of the sunshine, the long daylight, the rapidity with which the ground dries after rain, the cool and bracing afternoon wind are all of value in stimulating metabolism and eliminating waste products. The prairies run quite to the foot of the mountains, where the patient may obtain in a few hours the benefits of intense insolation at mid-day, a low relative humidity of the atmosphere, very rapid and great changes of temperature at nightfall, all due to the small rainfall and the elevation above sea-level.

Up to this point I have been speaking only of those places, which have acquired merit in virtue of their natural advantages, and the adaptation of them to purposes of health by natural means. It yet remains to make mention of one place, at least, where health is restored by means of miracles. The best known of these temples of healing is the shrine of Ste. Anne de Beaupré, or *La Bonne Ste. Anne.*

It is situated 20 miles below Quebec, and may be reached by a railway which was constructed especially for the accommodation of pilgrims and pilgrimages, and appropriately blessed by Cardinal Taschereau, upon the occasion of its opening in 1889. For 20 years the shrine has been visited by seekers after health, the average yearly attendance being 150,000 persons. There is no place in the United States where miraculous cures are performed on any considerable scale, and citizens of that country, who expect benefit from that method of treatment are obliged to come to Quebec, or go to Mexico. Many marvellous cures are reported as a result of a visit to the shrine, which are attested to by a monument of crutches and *ex voto* offerings. The most hopeful moment for a visit is on Ste. Anne's day, July 26th, which fortunately falls at a time of year when large pilgrimages are easily handled by the railway companies.

But much more important to the seeker after health than formal resorts are the devices which Canadians themselves employ. In the vicinity of Montreal are numberless small camps, owned by groups of men, where they are in the habit of going to recuperate. Life in the woods is extremely simple, and it is a sovereign remedy for disturbances of the digestive and nervous systems. Canadians are a kindly people, and any visitor with some slight introduction can easily gain admission to these silent places.

LABB AND SALOMON.. "Les Anémies Pernicieuses." *Revue de Médicine,* April and May, '08.

This paper, of sixty-four pages, which has recently appeared in the *Revue de Médicine,* is an exhaustive study on Pernicious Anæmia, and one worthy of careful perusal by all interested in clinical medicine. After a short historical sketch from Biermer's first description (1868) to the recent publications of Hayden and others of the French school, the authors conclude that pernicious anæmia is not a specific entity but a clinical syndrome of varying etiology.

Etiologically, the disease can be considered as "Phenerogenetic," or of evident origin and cryptogenetic or of concealed origin. Under the former he groups, (1) repeated hæmorrhage (gastric, uterine, nasal and vesical), (2) intestinal parasitis (Botheriocephalus and anchylostoma), (3) malaria, (4) bacterial infections, (5) tuberculosis, (6) syphilis, (7) cancer, especially gastric, (8) gastro-intestinal disorders and auto-intoxications, which are said to be the cause of the so-called idiopathic cases, (9) nephritis, (10) pregnancy, (11) lead, (12) carbon monoxide, arsenic and opium. The factors necessary for any of the above conditions to result in this syndrome are, (i) an excessive intensity of the morbid cause, (ii) the localization of the infection, (iii) the duration or repetition of the cause, (iv) an accumulation of the morbid condition, (v) predisposition.

To sum up, they conclude that "Progressive Pernicious Anæmia can be the final stage of secondary anæmias..... if there be an insufficiency of blood repair."

The anæmic symptoms—pallor, dyspnœa, œdema, etc., predominate. As pointed out by Kraus, the cardiac area may be increased on percussion and in the radiograph, due to a dilatation of one or both ventricles, or to a relative mitral or tricaspid insufficiency. Attention is called to the "Pseudo-tabetic type," described by Lichtheim, Déjerine and others, in which there are paræsthesias, less commonly hypo-or hyperæsthesias, paralysis or ataxia, a gait resembling that of a convalescent from a severe illness, diminished or absent tendon reflexes and retinal hæmorrhages; post-mortem one finds capillary hæmorrhages or sclerosis

in the posterior and lateral columns of the spinal cord. Other clinical types are, (1) Pseudo-cancerous with gastric symptoms, (2) icteric with symptoms of an angiocholitis, (3) hæmorrhagic; occurring in young adults with epistaxis and rheumatoid or scorbutic symptoms, (4) leukemic in which the blood picture is one of pernicious anæmia plus the leukemic formula.

After discussing Engel's and Vaquez' and Aubertius' classifications, they suggest the following one, based upon the blood picture and the findings in the hæmatopoietic system. I. Plastic Anæmia—the commonest variety in which there is a reaction both in the bone-marrow and blood. II. Aplastic anæmia—a rare form, with inertia of the blood and marrow. III. Hypoplastic anæmia—a transition type between the above, due to an insufficient reaction of the marrow.

In the plastic anæmias the blood as a whole is pale, and has a low density, small residue and diminished albumen content. The red cells often reach below one million. The hæmoglobin may fall to 10 per cent., but the colour index is above normal. There are also poikilocytosis, an increase in the average diameter of the red cell, polychromatophilic and basophilic granulations of the red cells. Further, the various forms of nucleated red cells are found; viz., normaloblasts, megaloblasts, microblasts and occasionally "metrocytes," or cells with abundant protoplasm, sometimes taking the function stain, and a small eccestric nucleus. The nucleated red cells usually appear when the count is in the neighbourhood of 1,500,000, and may vary in number from 50 to 200 per c. mm. They are diminished in the terminal stages and their increase denotes an attempt at repair and precedes an augmentation in the red cell count and a remission of the anæmia. The white cells are diminished, especially in the severe forms, but there is a relative increase in the monuclear leucocytes, while in all cases myelocytes are found. Blood platelets are normal or slightly increased.

The bone marrow of the long bones is red, and there is an absence of fat or sclerosis, while the cellular elements are grouped around the veins; the hæmoglobiniferous elements predominate in the form of normo- and megaloblasts; there is a greater proportion of polychromatophilic cells, karyopinitic figures, gigantoblasts, neutrophilic and eosinophylic hyelocytes, "mastzells," and numerous "transitions forms." The spleen, which is sometimes enlarged and sometimes diminished in size is firm, sclerotic, and brownish red. It shows a slight myeloid reaction in the form of a few myelocytes and normaloblasts in the pulp or in the periphery of the malpighian corpuscles. Further, there are hæmolytic lesions characterized by iron pigment in varying amount, contained within the macrophages of the pulp. Lastly, there is a more or less

advanced sclerosis. The liver shows all varieties of degeneration, including hæmolytic areas, as shown by the pigment in the macrophages of the hepatic cells.

Aplastic anæmia is very rare and has chiefly negative characteristics. The poikilocytosis, polychromatophilic, nucleated red cells and myelocytes are entirely wanting. The blood platelets are much diminished. The bone marrow of the long bones is yellow and pale and is entirely fatty, with few lymphacytes and red cells and an occasional mastzell, but no myelocytes, nucleated red cells or polynuclear neutrophiles. The spleen and liver show no myeloid change, but are sclerotic and contain ochre pigment. The hypoplastic anæmias are forms intermediate between the plastic and aplastic types. Thus, the anæmia may be plastic at the onset and aplastic in its final stage, or there may be a discordance between the blood findings and the visceral. One cannot conclude from the blood as to the activity or inertia of the bone-marrow.

As to pathogenesis the chief theories are, (1) Grawitz's Theory of Hæmolysis or an exaggerated blood destruction, and (2) Hayem's Theory of Anhemato poiesis, or an insufficient production. Though the former seems the more plausible, the serum of pernicious anæmia has never been shown to be hæmolytic. Again, while the latter would account for the aplastic type, nevertheless, here, too, increased destruction is the chief factor, for it must be borne in mind that in the normal marrow the renovation of blood exacts very little work on the part of the hæmatopoietic organs, and, further, in this type the liver and spleen show signs of a severe cellular destruction. Hence, "pernicious anæmia is in the majority of cases, if not always, an anæmia by blood destruction."

The diagnosis is easy in most cases, the difficulty is to fix the point at which the "pernicious" character commences. Erlich says an anæmia of 2,000,000, or less, is pernicious. Labbé and Salomon have broader conceptions and include all anæmias with progressive loss of red cells, whether terminating fatally or otherwise, as of the pernicious type.

The prognosis is nearly always grave, nevertheless, there are a few undoubted recoveries reported. The gravity depends upon the cause; thus, pernicious anæmia from cancer is always fatal, while that from Bothriocephalus is curable. The immediate prognosis depends upon upon the degree of anæmia, though Quincke's case with only 143,000 red cells recovered! Vaquez and Aubertin believe that the aplastic type is always quickly fatal, while the plastic type with indications of a myeloid reaction can be cured by appropriate treatment. Contrary to Grawitz, Labbé and Salomon do not consider the presence of megaloblasts of necessarily grave significance.

The chief indications in the treatment are to remove the cause where possible and in any case to preserve the red cells and to aid the organism in the formation of new cells. The latter indication is best met by an alimentary *régime*. This includes the use of starchy and fatty foods, which cause less destruction than the proteid forms. Grawitz gives a vegetable diet with condiments and fruits. Eggs and albuminous foods are allowed with daily lavage of the rectum and stomach. Further, absolute rest is demanded and oxygen indalations may be tried. Arsenic in its various forms is the only drug that is of benefit. Some authors recommend a combination of sweating, bleeding and diuresis. Metchnikoff advises very small doses of hæmolytic sera, but his results are questionable. Carnot and Deffandre have isolated from the serum of animals which have been bled, a substance which they call "Hemapoietine," which appears to provoke and control blood renovation; it is more abundant in the bone-marrow, where it apparently originates. They administer the serum subcutaneously and the marrow per rectum. Others have reported benefit from specific sera, as the diphtheritic serum. Some have published cures from the use of bone-marrow of healthy animals. The Roentgen Rays are said to be beneficial and are considered worthy of trial by Labbé and Salomon.

Conclusions—(1) Progressive pernicious anæmia is not a morbid entity, but a clinical syndrome due to an excessive destruction and an insufficient repair of blood, (2) the syndrome has no precise limits; there are insensible transitions between mild, severe and pernicious types, and even in the evolution of a particular case, (3) according to its etiological and clinical evolution, pernicious anæmia appears to be the final stage of symptomatic anæmias and is an expression of the generally irreparable failure of the hæmatopoietic organs which cannot compensate for the loss due to deglobulisation." C. P. H.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The thirteenth regular meeting of the Society was held Friday evening, April the 3rd, Dr. Wesley Mills, President, in the chair.

PATHOLOGICAL SPECIMENS.

RUPTURED AORTIC ANEURYSM.

W. S. Lyman, M.D.—

F. R. England, M.D.—I would like to ask how Dr. Lyman explains the etiology of the aneurysm.

There is no history of syphilis but arteriosclerosis is present

W. S. Lyman, M.D.—In the presence of a general arteriosclerosis we regard the aneurysm as a part of this general change; hypertrophy first of the intima, then degenerative changes in the media, with weakening of the walls and gradual dilatation until the aneurysm was completely formed, then rupture.

VESICULAR MOLE.

W. Gardner and H. C. Burgess.—These cases are really very rare, one writer estimating the frequency at about one in 2,000 pregnancies, The points in the diagnosis are of great interest. I was in some doubt as to the nature of this case until one day we were able to detect rythmical contractions of the tumour. There was this, however, about the case, which is always suggestive of vesicular mole if one can be sure that the abdominal tumour is uterine, namely, that the rate of growth of the enlargement was out of all proportion rapid when compared with that of normal pregnancy.

The subsequent course of these cases is of great interest in view of the frequency with which they are followed by the development of chorion epithelioma.

Dr. Lapthorn Smith, M.D.—I would like to ask if this is not the second case which Dr. Gardner has had.

Dr. Wm. Gardner, M.D.—This is only the third case which I have seen.

OSTEOMYELITIS OF THE TIBIA WITH DEATH OF THE WHOLE DIAPHYSIS.

J. Alex. Hutchison, M.D.—

Dr. J. Alex Hutchison, M.D.—The history of the case is as follows:—H. L. aged 12 years, was admitted to the Montreal General Hospital about one month previous, suffering from a large fluctuating swelling in the front of the right leg, with swelling in the right wrist and forearm. He is a child of a delicate father who is thought to be tuberculous; the mother is dead, cause unknown. The child was always delicate but there is no history of rheumatism or of any of the diseases of childhood.

The onset of the present attack occurred about four weeks before admission to the hospital, in the form of pain and swelling of the right leg and wrist. This continued and grew progressively worse. On admission the child showed marked evidence of serious illness; was pale, temperature 103°, rapid, weak pulse, over 130, had a frightened anxious look, and was badly nourished. Examination of the wrist showed a large semi-fluctuating mass involving the lower part of the forearm and the back part of the wrist. The right leg was a mass of fluctuating swelling from the knee to, and apparently involving the ankle joint. Under general anæsthesia a linear incision was made from the tuberosity of

the tibia down to the ankle joint. The tissue was exceedingly thin, a little more than parchment-like in thickness. This was followed by a gush of thick, yellow, creamy-looking pus with some small blood clots.

When this was mopped out it was seen that the whole diaphysis of the tibia was free from periosteum in its entire length and circumference. It could be seen on examining the edges that the periosteum had retracted. The bone was completely bared. At the upper and lower portions near the upper and lower epiphyses there were evidences of regeneration of bone in a number of isolated patches. The bone was quite loose below but fairly firmly attached above. On closer inspection of the upper epiphysis it was seen that the whole of the front and sides and part of the posterior wall of the tibia were separated from the upper portion With my fingers I simply lifted away the diaphysis from the lower epiphysis. The epiphyseal margins were covered with necrotic tissue and exudation. The periosteum was bright red and there were already evidences of granulation tissue over its entire surface. The part was cleansed out with a disinfecting solution and then packed with iodoform gauze. The ankle joint was not involved. The wrist was opened and the bones were found to be quite loose, in fact, the small bones slipped out when the examining finger was inserted in the incision. The second metacarpal was broken in its centre and practically disorganized so that it had to be removed largely with the curette.

A culture taken from the wound showed the staphylococcus aurens. This is the common infective medium in such cases. The removed bone was perfectly dry, showing a polished surface. The child was very ill for a few days but eventually improved, and about a week or ten days ago I made the attempt to close in the poriosteum on the front of the wound, hoping that by so doing we might get new bone formation. To do this I used the method of Moorhoff. Unfortunately we have not in Montreal Moorhoff's complete apparatus for cleansing out such cavities. However, we attempted to thoroughly disinfect and dry out the membrane, and by bringing the parts together with a few interrupted sutures we made a channel or canal, and into this was poured the Moorhoff plombage, which consists largely of iodoform and paraffin, sterilized previous to being used and poured in in a heated condition, where it quickly solidifies. The success in its use depends entirely on the degree of disinfection of the space before its use; if this is successful the paraffin remains as a solid medium in which the periosteum will lie and is gradually disposed of during the next few weeks. Moorhoff's article refers to radiographs taken at intervals during convalescence, showing at first the cloudy area of the preparation, later its narrowing shadow, until it is practically disposed of. I have used it also in other cases of

myelitis and it has seemed to be of much service. I have never had a complete disposition of the paraffin such as Moorhoff himself has recorded so many cases of. Since this last operation the child has not shown any evidence of infection of the paraffin in as much as the wound looks fairly clean though there is a little suppuration from the ends. I have had no personal knowledge of recovery from so extensive a disease as the whole of the diaphysis of the tibia, and the progress of this case will be watched with interest. Dr. Elder has one case of old standing osteomyelitis of the fibula where the sequestrum has been taken away and the new bone formed, forming the typical hard eburnated tissue which usually follows this disease. I am indebted to Dr. F. Gurd, for the drawing shown.

Dr. A. Lapthorn Smith, M.D.—I would like to know what would become of this paraffin and iodoform where the periosteum will reproduce the bone; as the bone grows will the wax be squeezed out or will it be absorbed in any way?

Dr. F. R. England, M.D.—I would like to refer to a case presented to this Society by Dr. F. J. Hackett, where he had removed the entire clavicle for osteomyelitis. The periosteum was preserved, the part cleansed, and the wound allowed to heal by granulation. No wax was used. When the patient was brought before the Society it was evident that an excellent result had been obtained and a very serviceable clavicle had been developed.

Dr. J. Alex Hutchison, M.D.—In answer to Dr. Smith's question I would say that if the cavity is not thoroughly disinfected the plombage separates into small particles and is gradually washed out by the subsequent suppuration.

Where the cavity is thoroughly aseptic the plombage is gradually dissolved and gradually disappears, as Moorhoff has so well shown in his radiographs, the gradual narrowing of the shadow and its becoming smaller at different periods after the paraffin was introduced.

The fourteenth regular meeting of the Society was held Friday evening, April 24th, 1908, Dr. Wesley Mills, President, in the Chair.

FORCIBLE CORRECTION OF LATERAL CURVATURE.

J. Appleton Nutter, M.D.—Cases of lateral curvature suitable for forcible correction are not very common, hence I thought this of sufficient practical interest to bring before the Society. Lateral curvature may (Lovett) be divided into two large groups (1) postural, or functional, due to faulty attitude and without actual bony changes, and (2) structural, or organic, where an X-Ray would show definite changes in the spine. Postural scoliosis shows in 90 per cent of cases a curve to

the left, and the rule is for the prominence of chest or loin to be on the side of the concavity of the curve. Organic scoliosis, on the other hand, shows characteristically the prominence on the side of the convexity, as is well seen in the case before you.

In the greater number of cases of scoliosis the etiology is rather obscure, and we speak of it as the result of faulty habitual posture. In other and severer cases we can be more definite as to the causation. Among the more prominent factors may be mentioned torticollis, ankylosis of hip in adduction, inequality in length of legs, infantile paralysis, empyema and rickets.

As to treatment, that of the postural variety is to correct the faulty attitude, restore flexibility to the column, and then give a regular setting up drill. The prognosis is good for complete recovery. In the structural or organic variety we loosen up the spine and make an improved position possible by gymnastics, passive stretching of the spine, and forcible correction by plaster jackets. These are applied in succession, at intervals of a few weeks, until as much correction is got as seems possible, then a permanent leather jacket or other retentive apparatus is worn, removed only for exercise. In these cases the prognosis depends on the muscles being developed which maintain the corrected attitude.

The boy before you suffered an attack of infantile paralysis when one year old, leaving him with a greatly weakened right arm, and probably weakened trunk muscles. One year later it was noted that the spine was becoming crooked. He is now seven years old and presented, when first referred to me by the kindness of Dr. A. D. Aubry, a most marked right dorsal scoliosis with prominence of the thorax posteriorly on the same side. The right shoulder and left hip were both very prominent, and the boy looked dwarfed. He belonged evidently to the second class, organic or structural scoliosis. Following the usual treatment he was forcibly corrected by plaster jackets, which gave the most gratifying results. These were applied with the patient face downward in a hammock slung on a large gas-pipe frame. Three bands were applied to straighten the spine, two bracing it at the extremities of the curve (one in the left axilla and one over the left iliac crest) and one over the summit of the curve, pulling in the opposite direction. By their use the spine was very appreciably straightened and a jacket was easily applied which caused practically no discomfort. Padding was liberal over pressure joints. The boy himself was greatly pleased at the effect the jacket had in his carriage. Before, his right shoulder was much higher than his left; after the first jacket they were nearly level. He has now had three jackets at intervals of about a month. After two or three more he will be given a permanent leather jacket or other

apparatus to hold him straight, which will be removed to exercise the trunk muscles. If, as is likely, it is found that the deformity tends to reproduce itself with the jacket off, owing to paralysis of the trunk muscles, the leather jacket will have to be worn permanently. This, however, will be infinitely preferable to going through life with a grossly deformed spine and a consequently crooked body.

D. A. Shirres, M.D.—I would like to ask what the outcome here is likely to be. Is there likely to be any atrophic disturbance in the bone as well as in the muscles?

J. Appleton Nutter, M.D.—The spine can be very largely straightened and the outcome, as to the possibility of getting along later without any mechanical support, depends upon the development of the trunk muscles which maintain the corrected attitude. When he has received all the correction possible he will have a leather jacket which will be removed only for exercise. If the trunk muscles are intact they will be strengthened by exercise and he may be able to do without the jacket, but they probably are paralysed, so that to remain straight, he may be required to wear some form of mechanical apparatus all his life. As to bony change in the spine I do not look for any marked atrophic disturbance in the vertebral column as a direct result of his polio-myelitis, but only as a result of the continuance of the deformity.

BRACE FOR THE MECHANICAL TREATMENT OF LOOSE SEMILUNAR CARTILAGE.

J. Appleton Nutter, M.D.—The brace which I have the pleasure of presenting for your consideration to-night, was devised by Shaffer of New York, some years ago. Practically its sole object is to prevent rotation at the knee joint.

It is well known that when a semi-lunar cartilage is loose, flexion and extension of the knee are comparatively innocuous, but rotation is apt to cause a nipping of the loose cartilage between the condyles of the femur and the head of the tibia. If, therefore, we can absolutely prevent rotation, and the cartilage has not been displaced for too long, the loose piece has an opportunity of growing into its old bed and remaining there. The brace goes from the foot to high up in the thigh and is jointed at the ankle and knee. The foot is included for two reasons, to make rotation impossible at the knee and to have the weight of the apparatus borne on the ground. The brace consists of an inside and outside upright, jointed at the knee, to which broad leather cuffs are attached, which lace tightly over the thigh and calf. The outside upright is continued down to and under the boot and is jointed at the ankle.

The patient, who was referred to me by the kindness of Dr. Lauter-

man, has now been wearing the brace for some time. He prefers it infinitely to the plaster cast which he at first wore. As to results, under its use the knee has improved greatly and looks normal; there have been no fresh attacks since the brace was used but there is little doubt that the cartilage would break loose again if all support were now removed. In the autumn he will begin to do without it gradually and we hope there will be no return of the trouble.

J. M. Elder, M.D.—I have had some experience with this condition of displacement of semilunar cartilage. The question of opening a knee joint is a serious one, inasmuch as the resistance power here is very low. The question is not a new one, and if there is any mechanical device that would obviate the open incision for this displacement, it is deserving of the utmost consideration. In the history of the literature of this subject some ten years ago, Launstein, of Hamburg, published a great number of cases in which he had opened the joint and sutured the semilunar cartilage down to the top of the tibia. Now it would seem that you could not get anything by means of mechanical support, which would improve upon this, providing, of course, one got healing by primary union. His results, however, showed that these cases almost invariably relapsed after three or four years, and the patient would again have a displaced semilunar cartilage. Either the adhesions would stretch or something would go wrong. His contention was that it was not so much the semilunar cartilage as the kind of joint that was at fault. Surgeons have therefore, pretty generally given this up, and instead of trying to suture the internal semilunar to its place, they found better results followed complete excision of this cartilage, and this has become practically the operation of to-day. That it is an operation without risk no one will say, and I should be very much interested to see what the result would be in cases under the proposed treatment, not in six months or one year after, but in three years after the patient has given up wearing this mechanical support.

M. Lauterman, M.D.—I think that this brace has a distinct sphere of usefulness. One comes across quite a number of cases who decline operation and for these patients who have already gone through the discomfort incidental to wearing plaster bandages, etc., I think the brace offers considerable inducements. While every one of us will agree with Dr. Elder's remarks with reference to the seriousness of opening an important joint like the knee, his own statement with reference to the results is practically all the guarantee that one could ask for its continuing in favour. As I said before there are a number of cases who decline operation and the patient in question was one of these

and that was my reason for referring him to Dr. Nutter, who has taken great pains with him and the results so far are good. I met a confrère in Berlin last winter, who himself has worn such a brace for nearly two years, and three years had elapsed since he had abandoned it, and he had experienced no discomfort, incidental to the separation of his cartilage. Of course that does not say that it may not occur, yet here in this man who leads a very active life, there has been no recurrence during these three years.

J. Appleton Nutter, M.D.—I would not like to deny that the quickest way to be relieved of a loose semilunar cartilage is to have it excised, but many patients demand an opportunity of being cured without taking the risk of operation, and I think in these cases this brace is indicated. A number of cases have been reported cured by its use.

LARGE FIBROID TUMOUR OF THE UTERUS.

A. Lapthorn Smith, M.D., and L. C. Gilday, M.D.—This tumour was removed two weeks ago from a woman aged 45, single, and living at St. Therese. She only noticed the condition one year ago and for the last six months it has grown so rapidly that she was never able to lie down at night. Her only symptoms were the mechanical compression. On opening there was a good deal of free fluid in the abdomen due to the obstruction to the venous circulation. As a rule when we find a large amount of fluid in the abdomen with a small tumour, it is sure to be malignant but with a large mass, the mechanical obstruction alone is responsible for the production of the fluid. The patient has made a very rapid recovery. The tumour weighed thirty pounds. This is the second largest tumour which I have seen.

THE SPIROCHÆTE PALLIDA : ITS RELATION TO SYPHILIS.

(Illustrated by pathological specimens).

R. P. Campbell, M.D.—

THE BIOLOGICAL POSITION OF THE SPIROCHÆTE.

John L. Todd, M.D.—

SPIROCHÆTE CONCERNED IN THE CAUSATION OF RELAPSING FEVERS.

C. W. Duval, M.D., and J. L. Todd, M.D.—

J. G. Adami, M.D.—We have had this evening a most interesting symposium on this subject and are to be congratulated in having brought before us so clearly by Dr. Campbell, its clinical significance in temperate climates where it is of immediate interest to us and to hear from Dr. Todd its significance in relapsing fever of the tropics, and from Dr. Duval the splendid intelligence that he has been able to get a definite culture of a spirochæte. There are a whole crowd of interesting points that have come up this evening, and first of all I should like to ask Dr. Todd about his view regarding the animal nature of these spiro-

chætes. It seems to me from the description of the mode of growth which Dr. Duval has given that it does look as though we have growth in length, and very suspiciously as though such a long organism as that must divide transversely and not longitudinally, and that it must be vegetable and not animal..

Wesley Mills, M.D.—This evening has been a somewhat memorable one, not only because of the admirable papers brought before us, but because of this joint work. The subject of joint research is now in the air. At a recent meeting of the Association, the subject was thoroughly discussed and it was arranged that different people of different laboratories should join forces. The psychologists have already carried this out, and I do not notice that anyone has pointed out that medicine was in advance in this matter, though the clinicians and pathologists have long been doing this joint research. It is true it has not the definiteness of ideal science, but it did exist and does exist. We have heard this evening two scientists on different points of the subject and this has only to be extended between the different laboratories to start a world-wide chain. About fifteen years ago in Boston I attended a meeting of the physiological society, and read a paper on this subject of joint research but I am sorry to say there was not one single remark made upon that paper and I have had to wait these 14 or 15 years to find it becoming a reality among these scientific societies. I make these remarks in the hope that such joint action as we have had between these two scientific observers will be more common amongst us, and then that it will extend between all the laboratories in Canada, and still go further, until the world economizes its forces, and thus bring their various specialized talents to bear in adding to the sum of our knowledge of the world and happiness of the world, and preventing the misery of the world without all this dissension and waste. That some of this has been done here is a subject of congratulation and this has been done by young members of this Society.

J. L. Todd, M.D.—In reply to Dr. Adami, in reference to why you have these long forms which divide transversely, the fact that it divides in one direction is no reason why it should not divide in the other also.

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A STUDY OF THOMSEN'S DISEASE (CONGENITAL MYOTONIA) BY A SUFFERER FROM IT.

BY

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Not since Thomsen's classical description of this disease in 1876, so far as the writer knows, has it befallen the physician reporting it to be himself the sufferer. The writer here describes Congenital Myotonia as occurring in himself and his own family group. The affection has for long been of interest to neurologists and clinicians; partly from its rarity (Hale White has referred to it as "probably the rarest disease in medicine"); and, partly from the varied theories that have been put forward to account for its muscular anomalies.

Osler (Ed. 1906) quotes Hans Koch's statistics of 102 recorded cases (91 males, 11 females), many of which, however, were probably associated in family groups. The writer has come across no case in the Canadian journals or clinics. No attempt will here be made to go into the now quite extensive literature of Thomsen's disease; but those interested in the subject may be directed to Thomsen's original monograph, to the various papers of Erb of Heidelberg, and, especially to the very full and interesting account by Hale White in the *Guy's Hosp. Reports,* 1889. The electrical reactions, muscle-tracings, etc., in connexion with the present case were worked out some years ago with the assistance of friends on the staffs of the Liverpool Royal Infirmary and other hospitals. To Dr. F. H. Edgeworth—now Professor of Medicine in the Bristol Medical School—he was particularly indebted. He regrets that he has been unable to get a recent set of tracings for this paper, the original ones being out of his possession (Edin. M. D. Theses, 1898. "Thomsen's Disease"). The diagnosis was made by the writer

himself whilst still a medical student, and has since been amply confirmed by experts.

Previous History.—Ever since the patient can remember, he has been afflicted with a painless stiffness and cramp on first attempting any voluntary movement, especially after rest. This was first noticed by others at about seven years of age, and was always attributed to "rheumatism." It was also recognized that the stiffness quickly wore off on continuing the particular movement, *e.g.*, in running, but that it recurred after a brief rest. This "stiffness" affected all his muscles, and gave to his initial movements of any kind a peculiar clumsiness. He often suffered falls and minor injuries as a result of the cramps and his inability to "limber up" his muscles quickly. Rather unusual strength and muscularity were early evident, though he tired easily, and profuse sweating, especially about the head and neck, was rather noticeable on exertion. As a schoolboy the stiffness seemed to increase and was a source of great disability in all the sports and games. His schoolmates thought he was "ham-strung." Even his eye, tongue and jaw muscles were stiff at times. There was never any pain—only a tense, cramp-like feeling during the "limbering up" process; and, if he caught cold, he seemed to suffer more than most people from general muscular soreness. He was always considered a nervous and highly-strung lad, and was himself well aware that mental stress aggravated the cramps. *Pari passu* with the muscular development the disability progressed up to early manhood, since which time there has been no appreciable change in the condition.

Present condition.—*Æt.* 45, height, 5 ft. 8½ ins; weight, 150 lbs.; lean. The station is rather characteristic. There is a moderate lordosis. Both upper and lower limbs are carried with a slight flexion at the elbow and knee joints, which is only straightened out with a sense of effort and strain, due apparently to permanent hypertonicity of the more powerful flexor groups. The gultei are massive, the scapulæ rather prominent. Thus the moderate lordosis, winged scapulæ, slightly bent knees, and arms carried slightly flexed in front of the lateral line of the body give a picture quite different from that of pseudo-hypertrophic paralysis and from that of any other disease. The whole muscular system is very well developed—the different groups standing out sharply on being thrown into contraction. Some groups are, however, noticeably better developed than others; thus, the neck is both long and thick (the right sterno-mastoid rather heavier than the left); and the forearm muscles, glutei, vasti, internal obliques and the intrinsic muscles of the hand are all those of a trained athlete, although no systematic

exercise has ever been taken for any lengthened period. The calf muscles are not so well developed as those of the upper limbs. The pectorals and serrati can be made to bulge well. On light palpation the muscles show no abnormal firmness, though they quickly harden under firm kneading. On putting any group into strong voluntary contraction (this applies *chiefly* to the limbs) the muscles are found for a number of seconds to be of iron hardness; but this rapidly passes off and, if the contraction be maintained, a sense of fatigue rapidly supervenes and the muscles become somewhat flabby for a short time.

Peculiarity of movement.—This is entirely restricted to voluntary movements, and, to quote Hale White, "Consists in the fact that the contraction of the muscle which the patient wills to move is slower than normal, and that, because it relaxes *gradually and very slowly,* it remains for some seconds more or less contracted; this contraction is so strong that the antagonistic muscles cannot overcome it. If a certain voluntary movement is repeated several times, the patient begins to execute each movement before the preceding contraction has completely relaxed, and thus his difficulty as regards the stiffness becomes less and less in each movement." In the writer's case *all* voluntary movements are more or less affected, and they appear to be affected in proportion to the bulk of the muscular group involved. Thus, if, after a period of rest in a low chair, he attempts to rise and walk away, he can rise though somewhat slowly, and, preferably, with some help from his arms, but the advance of the leg in the first step is then checked by a painless cramp of the extensor muscles which have been thrown into action in rising, the other leg follows before the tonic spasm has passed completely away in the first, only to be checked in its turn by a cramp of the knee extensor and associated muscles. The second movement of the first leg is initiated before the spasm has completely relaxed, but the cramp this time is of less duration. With each succeeding advance of either limb the duration of the spasm and stiffness becomes rapidly less, until in a varying number of strides a normal gait is evolved. Whilst this is taking place, the stiff clumsiness of the movements is very noticeable, though the patient from long experience has learnt to mask this to some extent. Should running be suddenly attempted, the difficulty is exaggerated, the rapid iniation of fresh leg movements before the preceding spasm is fully relaxed necessitating some help from the arms to maintain the balance and secure better leverage until the legs get "limbered up." Should he at this stage strike his foot against any obstruction, a fresh spasm results and he is very apt to fall headlong, saving himself with difficulty from injury,

as the arms become stiff in their turn as they are extended in front of him. In fact, the rigidity extends more or less to *all* the muscles under these circumstances.

Breaking from a walk into a run is more easily performed; but, speaking generally, any throwing into action of a new group of muscles, or even any sudden extra-energizing of groups already in easy action, *e.g.*, walking to running, evokes the tonic cramps.

In waltzing, after the preliminary "limbering up" process, the evolutions are performed correctly enough so long as "reversing" is not attempted. This causes at once severe rigidity, as the previously slightly used groups of muscles are brought into action.

"The ordinary gait, after limbering up", always shows a slight jerkiness and spasticity, especially if full extension of the leg be attempted in each stride.

In "punching the bag," the first blow is delivered a trifle slowly, but the arm reaches full extension, there is then an appreciable delay in drawing it back for the second blow owing to the extensor spasm. The second blow is slower and extension far less perfect from the powerful flexor spasm, at the third attempt the blow is more rapid, and the resulting spasm shorter in duration, though the patient can still *feel* the cramp. With each successive blow that he delivers this becomes less and less, until, as in the case of the lower limbs, it rapidly wears off and the blows become forcible and regular.

On turning the head suddenly to one side, spasm of the neck muscles concerned results, wearing off rapidly if the same movement be repeated. If, however, the head be turned alternately to either side resulting difficulty is aggravated for obvious reasons.

In shaking hands firmly there is often inability to relax the finger-flexion quickly (*vide* muscle tracings), a trifle which may give rise to misconstruction in ordinary social intercourse. If the patient will to close the hand forcibly the contraction of the flexors is slower than normal, the grip is powerful, but its full force is not attained at once. On attempting to unclose the hand as quickly as possible a period of several seconds often elapses before full relaxation of the fingers is secured, the joints slowly extending from above downwards. If these movements be repeated as quickly as possible, it is again evident that the second extension act is initiated before complete relaxation of the opponents has taken place, that the flexor spasm is of shorter duration each time and the extension more complete, until, very shortly the movements are apparently quite normal. The myographic tracings show, however, that slight irregularities occur for many subsequent contractions—and this fact the patient himself recognizes. (Hale White).

Swimming shows the muscular disability very markedly, for here two contributing factors which the writer regards as important aggravate matters, viz., cold, and the nervous anticipation of the general spasm which follows. The movements are very stiff and sluggish, and co-ordination very poor for an appreciable time until he gets into the stroke. The large number of co-ordinated muscular groups brought into play results in so much spasm, that he may at times get a "ducking" before he can get sufficiently "limbered up" to get going.

In stooping, the back is stiff, partly from the lordosis and partly from the apparently hypertonic condition of the erector spinæ. If attempts to touch the toes with the knees straight be repeated he can reach a little nearer the toes each time, but never as far as the normal range of spinal flexion.

The *jaw* muscles are affected, for it, after rest, he attempts to open and shut the mouth rapidly the spasm and slow relaxation of the masseters and interal pterygoids may cause an appreciable delay in getting the mouth fairly open. Difficulty in chewing movements may thus result.

The extrinsic muscles of the *tongue* also show the defect—if rapid protrusion and retraction be attempted. All the facial muscles are involved, but, as the spasm seems everywhere in proportion to the bulk of the muscles, the defect is not so noticeable in the face as in limbs and trunk, still, if he laugh or make any facial gesture after rest or exposure to cold, he is often conscious of a stiffness about the face and a smile may take on the sardonic type and possibly require explanation. The spasm has been noticed in the frontalis. The rarely involved *eye muscles* are decidedly affected. Sudden lateral movements of the eyes cause a spasm which cannot at once be overcome, resulting in phosphenes momentary diplopia and dizziness—the patient relieves this by stroking down the closed lids for a moment or two to help relaxation.

Grafe's sign may at times be elicited, and is to be attributed to contraction of levator palpebræ superioris. (Raymond).

Movements made at command sometimes end in contracture, especially upwards.

When the eyelids are forcibly closed, there is at times, sluggishness in opening them until the act has been performed a few times.

At times there are phosphenes on head movements, as in a case of Raymond's (quoted by Knies). This he ascribed to pressure on the globe by the extrinsic muscles or of the muscles of the neck on the aorta.

In rare instances, the laryngeal muscles have been stated to be involved. In the writer's case there is at times, but only after prolonged

rest and in cold weather, decided thickness of speech for a few moments, due to stiffness of the extrinsic tongue muscles and those of lips and mouth. In singing there is at times difficulty in getting a full note or tone, a difficulty which is associated with a feeling of something amiss with the laryngeal muscles,and wearing off, as usual, very rapidly on persistence of the attempt—this point is not, however, easily demonstrated.

Micturition, like all the organic reflexes, is said to be never affected. If, however, the stream be stopped by voluntary contraction of the sphincter the fleeting spasm and slow relaxation is easily appreciated in the present case.

Though aggravated by emotion ("nervousness") it often occurs when this can be excluded. It is only the voluntary muscles concerned that are involved. It is to be noted that, in any particular group, it is often the *second* movement of a similar kind that shows the disability most markedly, this is easily understood if it be borne in mind that the *prolonged relaxation* after any contraction is the most serious trouble.

As regards the effect of cold, emotion, etc., on the severity of the tonic cramps, the writer finds himself at variance with some other observers; thus Hale White, who has gone into the subject so thoroughly, states (Albutt's System), that these peculiar arrests of movement are affected (in his case) neither by cold, by direction of attention to them, by mental excitement, by time of day, by alcohol, by meals, nor by temperature; but that sometimes fatigue will bring them out with unusual prominence. The writer is convinced that the following factors are important, as Thomsen, Blumeau, Dana and others have remarked in the past.

(a) *Prolonged rest of the muscles.* This is the most important factor. The longer any particular group of muscles is kept at rest, the more severe and prolonged is the tonic spasm when they are put into contraction.

(*b*) *The suddenness and force of the contraction that the patient wills.* A sudden and strenuous attempt to "drop-kick" a football will be followed by a sever extensor spasm, whilst the act may be performed with comparative ease, if a few gentle preliminary kicks are taken to "limber up" the muscles involved. Instances might be multiplied.

(*c*) *Mental excitement and emotion. Direction of attention to it.* The writer's case shows marked aggravation under these conditions. As a schoolboy he was a distance runner. When the pistol was fired for the start of a race, the strong attempt to rapidly innervate the leg muscles was accompanied always by a momentary and indescribable

feeling of utter powerlessness, the stiffy-advanced limbs would be affected with a cramp of unusual severity, which took longer than usual to wear off and, should he, by fixing the arms and initiating new contractions too rapidly or forcibly, overdo things, he would be sure to trip and fall prone. The writer regards this subjective and fleeting sensation of absolute loss of power succeeding the moment of willing as representing the subject's actual appreciation of the *delay in the latent period,* which some observers state does not occur. This is a point of some interest in connexion with the view generally held as to the nature of Thomsen's disease.

(*d*) *Cold.* This definitely aggravates the condition in the writer's case. Dry warmth seems to help "limber up" the muscles. This cause is much less efficient than the preceding.

(*e*) *Small doses of alcohol* undoubtedly diminish the severity of the cramps for the time being—possibly owing to the effect of alcohol on the inhibitory mechanism.

(*f*) *Fatigue* is a moderately effective factor. After any excessive muscular exertion there is marked stiffness and some soreness of the muscles. The abnormal functioning of the muscles may result in the production of an excessive amount of the bye products of metabolism, thus aggravating the spasm. It is usually stated that the *muscular strength* is not in proportion to the bulk of the muscles. Observation of the writer's case would indicate that this is an error, since from early schooldays the patient has been regarded as unusually strong (muscularly) for his size and weight. The hand-grip, for instance, is very severe, but owing to tardy contractions its maximum intensity is only slowly attained, and *fatigue ensues more rapidly than normal.* The statements as to the power of the muscles seem to depend, the writer thinks, on a failure to recognize this premature onset of fatigue which the patient himself best appreciates, and which seems out of proportion to the efforts made.

It should be added, that the tonic spasms are entirely painless as a rule, and it is only when successive contractions are rapidly and powerfully initiated before anything like complete relaxation of the preceding ones has occurred, that the muscles become "tied-up," and a marked sense of discomfort amounting, though rarely, to pain or even a "sprain" of the muscle may result. *Passive* movements are free. The superficial, deep and organic reflexes all appear normal. The knee-jerk is slightly exaggerated perhaps. The patient *sweats profusely* under rather slight causes, especially about the head and neck. This has been noted in other reported cases.

Electrical reactions.—We are indebted to Erb, of Heidelberg, for our initial knowledge of these, and they are, when typically present as a the writer's case, collectively known as *Erb's Myotonic reaction.* Hale White gives them as follows:—

(i) The motor nerves show no increase of irritability to mechanical stimuli;

(ii) To the faradic current the motor nerves are quantitatively normal; but, if the current be strong, the contraction produced on closiug the circuit lasts much longer than it does in health;

(iii) To the galvanic current the motor nerves are quantitatively normal; but here also, if the current be strong, the contraction lasts longer than in health;

(iv) Mechanical stimuli applied to the muscles, as by hitting them, induce contractions more easily than in health; these contractions often last from five to thirty seconds;

(v) The faradic current applied directly to the muscles, if strong, sets up a contraction, which lasts from five to thirty seconds;

(vi) When the galvanic current is applied directly to the muscle K.C.C. and A.C.C. are equally easy to obtain; while in health, as is well known, K.C.C. is more readily elicited than A.C.C. In Thomsen's disease even with weak currents the contraction lasts longer than in health; with strong currents it lasts some seconds and relaxes very slowly. *With the stabile application well-formed wave-like contractions are seen to proceed slowly from the cathode to the anode.*

It is to be noted that in many of the reported cases there has been a failure to demonstrate all these points. Thus Hale White in his case (shown before the Medical Society of London, 1890), failed to make two of Erb's six, viz., muscular contractions on mechanical irritation, and the wave-like contractions under the stabile galvanic current.

In the writer's case *all* of these demands have been met under the independent scrutiny of such experts as R. Caton of Liverpool, and Edgeworth, of Bristol, and the late James Stewart, of Montreal.

The excessive irritability under mechanical stimulus of the muscles (*vide* cut), and the cathode-anode undulation under the stabile current are easily elicited.

The stronger *faradic* currents produce marked, and, what is essential, *sluggish* contractions of the muscles, *persisting after the cessation of the current*; weak irritation causes only short lightning-like spasms. At any time a rap from a percussion hammer on forearm, pectorals, glutei or vasti will produce a lumpy contraction, often with a central depression, which may be thirty seconds in relaxing, and which can

be felt as a localized cramp by the patient for, perhaps, another thirty seconds.

Myographic tracings after the method of Hale White, have confirmed and elucidated the above mentioned phenomena. The flexors in the forearm were selected and the patient directed to shut and open the hand as strongly and as fast as possible.

(*a*) Prolongation of the latent period. The patient *feels* that when he *wills* it he cannot start the first contraction instanter.

(*b*) A slow and powerful initial contraction taking much longer than the normal to reach its maximum.

(*c*) An appreciable delay at the top of the wave before relaxation begins.

(*d*) A *very prolonged relaxation curve*—often five eo thirty seconds before complete.

(*e*) Initiation of the second contraction before complete relaxation of the first—each succeeding contraction being started at a shorter interval than its predecessor.

(*f*) A number of contractions and relaxations occur before the curve becomes normal.

(*g*) The first one or two powerful contractions are succeeded often by some feebler ones, and the rise to normal is only attained later.

(*h*) The early contractions and relaxations are often a little irregular.

To the trained observer one and all of these phases are appreciable during the performance of a series of strong voluntary contractions.

Histology.—Fragments of muscle excised from the vastus externus showed the points which have been noted by a number of observers, viz.:—

(*a*) A marked increase in size, and especialy of the breadth of many individual fibres, which are more rounded than polygonal on section—and some of them three times the normal width.

(b) Indistinctness of striation and waviness of outline of fibres.

(c) An apparent increase of the nuclei of the sarcolemma.

(d) An absence of interstitial changes and vacuolation (as described by Erb).

It is more than doubtful whether these changes can be regarded as essential or characteristic.

The observations of Erb, Nearonow, Hale White and others all agree in these points, and Dégérine and Sottas proved them at autopsy on a case of Thomsen's disease in which careful examination of the whole nervous system gave negative results.

Hale White found the fibres in his case to vary from 1-150 to 1-500

of an inch. He controlled this by examination of fibres from the flexors of a normal adult forearm which varied from 1-350 to 1-1000 of an inch.

It is to be noted that Jacoby, from his earliest researches, doubts whether these muscle changes can be regarded as peculiar to Thomsen's disease—a doubt which may be borne in mind in the consideration of its etiology.

Pathology.—Since Thomsen's day many theories have been offered to explain the condition. So far as the writer knows the necropsy by Dégérine and Sottas still remains the only one on record, so that any discussion can only be speculative. Thomsen's own view seems to have been that the affection was a neurosis, and he called special attention to the heavy incidence of nervous disease in his family group. It has been ascribed to a congenital, faulty development of the pyramidal tracts. Jacoby has regarded the disease as a congenital malformation of the muscular fibres—each fibre containing too many sarcous elements—hence the hypertrophy of the fibres, and the increased duration of their contradictions. Dana says: the disease is probably a primary muscular dystrophy. There may be, however, a peculiar defect in innervation, resulting from a congenital anomaly of the motor tracts. The views of Hale White are thus stated:—"It would appear that each individual affected is from his birth faultily constructed, so that some of his muscular fibres all through his life grow abnormally, and in consequence of this abnormal growth contract in an abnormal manner. This is more in harmony with what we know of other diseases than to believe as Dégérine and Sottas apparently do, that the abnormal contraction of the muscle leads to its abnormal growth. All who have written on the subject agree that it is a disease solely of the muscular system." (Albutt's System, Ed. 1905).

The writer ventures to dissent from the last statement as the possibility of the nervous system being seriously at fault seems to be held by a number of most competent observers.

Hale White calls attention to the similarity of the muscle tracings in Thomsen's disease to those induced in animals poisoned with veratria; and also to the well known experiments of Ringer and Sainsbury with phosphate of soda on curarized animals, from which it appears that the myotonic contractions produced on stimulation of the sciatic nerve are due to the action of phosphate of soda on the muscular fibres themselves.

Danilla in reporting a Russian case (1886), expresses the view that it is a functional disturbance of the cerebral psycho-motor centres.

Cook and Sweeten have suggested the following explanation of their

reported case (B. M. J., 1890) :—"This seems to be entirely a functional derangement..... It may be supposed that, after a period of rest, during which the motor cells have acquired their maximum force, the voluntary impulse causes an excessive discharge of motor energy, which of itself sets up a second and succeeding discharges in the same cells, and thus the muscle is again stimulated to contraction before it has had time to relax from the first contraction, and that, after the cells have been thus relieved of their excess of energy, they become more stable, and are able to work smoothly. Or a similar theory might be applied to the muscle cells."

Osler states:—From Jacoby's latest studies it is doubtful whether these changes in the muscles are in any way characteristic or peculiar to the disease. J. Koch, however, has found, in addition to the muscle hypertrophy, degenerative and regenerative changes present which he considers sufficient to account for the myotonic disorder. Karpinsky and Von Bechterew, from careful urinary examinations, regard the affection as due to an auto-intoxication of the muscle tissue, caused by some faulty metabolism. The writer has not had the urinary changes exhaustively investigated; but there is present intermittently an excess of indican and the aromatic sulphates. No other abnormality has been noted in a routine examination, which, of course, supplies little evidence for or against the last mentioned theory.

Excess of both preformed and conjugate sulphates has been noted in pseudo--hypertrophic paralysis (Simon).

The writer has for many years been convinced that the nervous system plays a more important rôle that is to-day usually conceded. He thinks that too little stress has been laid on other neuroses occurring in the different family groups. His own view, for which neither originality nor completeness is claimed, is something as follows: That the disease is primarily a congenital functional defect in the mechanism of inhibition. That, owing to the faulty functionating of the neurones concerned, the muscles at rest are kept in a state of hypertonus; and, on attempting suddenly to contract a muscular group, the inhibitory "break," so to speak, cannot be taken off rapidly enough. This delay would represent the prolonged latent period and the moderately slow contraction. On attempted relaxation the disorder of inhibition is more than ever in evidence—the "break" is taken off with much increased difficulty, and thereby is explained the peristence of the contraction and the remarkably slow relaxation. The more powerful the contraction, the greater the inhibitory difficulty. The hypertrophy of the muscles would thus be a secondary development, dependent (a) on the state of hypertonus (kept

up by the over-activity of the inhibitory mechanism) during rest; and (b) on the prolonged contractions and delayed relaxations constantly repeated. It is conceivable that the trouble might be aggravated by the excessive accumulation of the products of muscle waste during the prolonged contractions. This view would make the defect in Thomsen's disease comparable to that in stammering, and class it as a neurosis of the whole psycho-motor tract. It accounts easily for the aggravation caused by depressing mental emotions, cold and fatigue, and the relief under the opposite conditions. The writer acknowledges frankly that there are strong points to be urged against such an explanation; but not one of the numerous views which have from time to time been held seems to him impregnable. It still remains for the physiologists to clear up for us the whole subject of "inhibition."

The wearing off of the spasm on repetition of the movements would be explained by a rapid exhaustion of the excessive inhibitory impulses; and the early fatigue, by the excessive accumulation of the products of muscle waste. The longer the period of rest, the greater the rapidly-renewed power of the inhibitory "break," and, consequently, the greater the tonic spasm on voluntary movement requiring powerful willing to overcome it.

The incidence of other neuroses (as in the appended table, and especially in Thomsen's own family), is, to say the least, *suggestive.*

Diagnosis.—In a fully developed case with this very characteristic clinical picture there can be no difficulty. Even in early childhood (it is usually at about 7 or 8 years of age that the disability is first noticeable) the history, the persistence of the spastic condition for a varying number of seconds on attempted voluntary movement, and the awkward movements to overcome the rigidity; the rapid "limbering-up" on repetition of the movements; the unusually well-developed musculature; together with Erb's myotonic reactions make recognition easy.

Cases showing only traces of it, as in the two maternal cousins of this group, (*vide* tree showing incidence of T.D.), may be puzzling, and a careful scrutiny of the condition of other members of the family should be made.

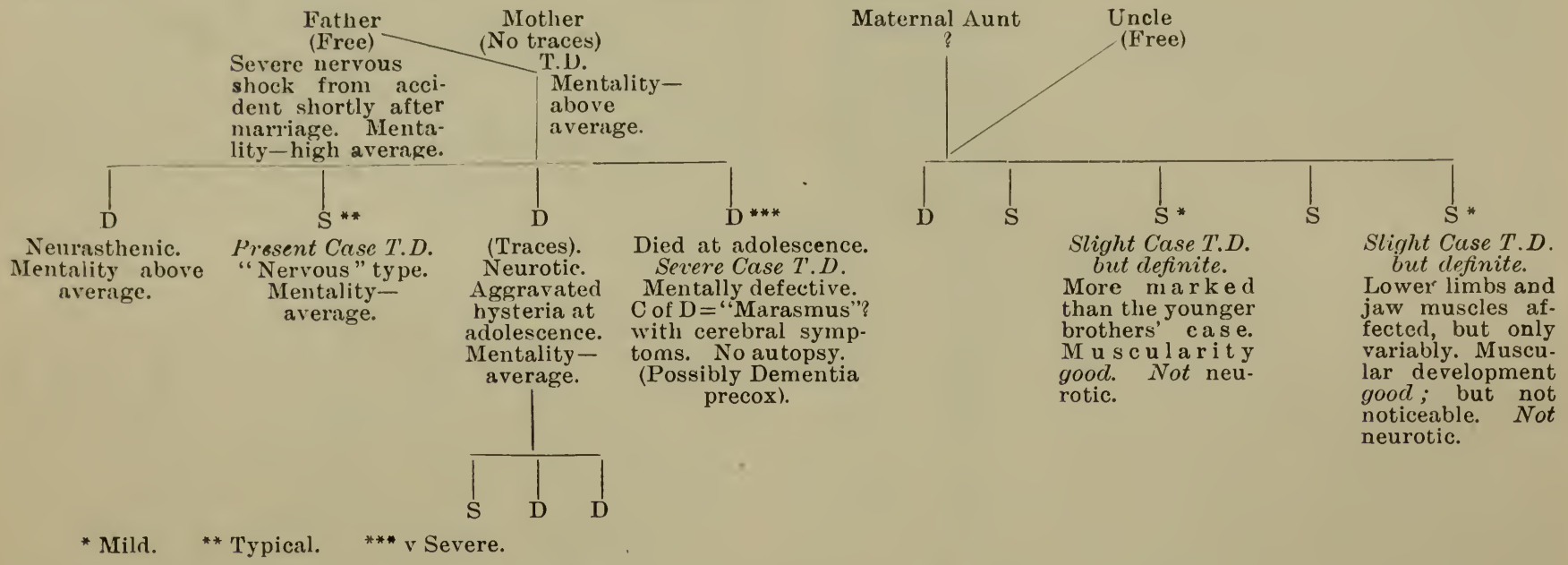
Friis (quoted by Zappert, of Vienna) observed the cordition in an infant at the breast, which showed frequent, sighing respiration, inability to open the eyes, immobility of the face when the child began to cry, and interference with the movements of the legs and fingers. Friis' case did not show the myotonic reaction, although the muscles of the legs were hypertrophic. His attention was directed to this child through the presence of the disease in other members of the family.

A. Indicating the general muscularity (without systematic exercise).

B. Indicating general muscularity and the lordosis.

C. Shewing persistent lumpy contraction of vastus for many seconds after mechanical irritation.

TREE SHOWING INCIDENCE OF THE DISEASE AND OTHER NEUROSES IN FAMILY GROUP.
(THROUGH THE FEMALE CHIEFLY TO THE MALES).



PHOTOS A. B. & C.

A. & B.—Showing general muscularity in T.D. despite sedentary life. Lordosis noticeable.
C.—Showing lumpy contraction of thigh muscles after rap with percussion hammer at least 30 seconds to full relaxation.

The Prognosis is unfavourable as regards recovery. The writer's condition seems to have remained unchanged since adolescence. It obviously causes great disability in the choice of an occupation; and time and money may be saved the unfortunate sufferer, if an early diagnosis be arrived at. The greatly increased risk of *accident* should be borne in mind, as a sudden movement to get out of harm's way is often impossible.

Treatment.—Nothing has proved of any avail. Organotherapy has been tried unsuccessfully. A warm and rather dry temperature seems to suit the writer best, and he feels more supple and alert under such conditions. *Moderate*, regular exercise is most important.

Incidence of the diseases on other members of the family.

One sister suffers from *traces* of it. Is neurotic and suffered from aggravated form of hysteria in earlier life.

One sister (deceased) showed it in a severe general form. As a child a push would send her staggering with all extremities more or less locked in the spastic position. Was always mentally rather defective, and died with symptoms suggesting dementia precox.

Two maternal cousins (both males) suffer from it. In one the jaw muscles alone, and in the other the legs, arms, etc., are involved also (*vide* appended family tree).

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CHORIO-EPITHELIOMA MALIGNUM.

BY

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My excuses for bringing this subject before you are first: my having been so fortunate as to have had under my care at the Montreal General Hospital, a second patient afflicted with this dread disease, which is interesting so many investigators all over the world, and, second, my having been able to collect histories of seven cases which have been observed in Canada.

Read before the Canadian Medical Association, Ottawa, 1908.

As the officer in command of an army sends out his spies, engineers and sappers to observe and prepare the country to be invaded, so does the impregnated ovum send forth its advance guard of cells which burrow beneath the uterine mucosa and prepare a resting place where it may remain secure during its further development. These trophoblastic cells ordinarily disappear after having performed their normal function, but in a few cases, owing to some unexplained cause, they give rise to a growth, which, in the vast majority of cases, ultimately ends by depriving of life the organism which has sustained and nourished it, and which, therefore, has been spoken of by Pinto[1] as "a sustained decidual reaction."

This growth was first described in 1888, by Sänger,[2] who considered it to be a sarcoma derived from the decidua, for which reason he called it "Deciduoma Malignum." In 1895, Marchand questioned the correctness of this view, holding that it did not arise from the decidua alone, but from the epithelium of the syncytium and Langhan's layer, that is to say, from the lining of the villi, thus suggesting a double origin, viz: a fœtal from Langhan's layer and a maternal from the syncytium. Later, however, in 1895, he modified this theory, believing that the syncytium did not arise from the maternal tissues, but from the fœtal ectoderm, and this theory, viz: that the disease is entirely of fœtal origin, is that which is held at present.

Schmauch[3] claims that the vitality of the trophoblast is limited to the formation of but three varieties of cells, viz: the cells of Langhan's layer, the plasmodium or syncytium, and the syncytial cells. He says that "it is the surroundings which give chorio-epitheliomatous cell its form. It is neither an epithelial nor connective tissue cell, it is something between these two. Consequently, it is able to assume the characteristics of both."[4] These cells being present in all pregnancies, what determines their malignancy? This is a difficult question to answer, but probably there is some change in the maternal organism which renders it less able to offer an effectual resistance to their undue proliferation. The possibility of this loss of inhibitory power being due to an alteration in the blood serum is a question of importance and well worth working out. It is not simply due to a transplantation of epithelium, as such a proceeding is followed by a proliferation of the cells which is but temporary, this fact lending strength to the theory of a change in the maternal structures being the cause of the malignancy. Neither the deportation of the villi nor the proliferation of the epithelium proves the malignancy of the growth. The former occurs in all pregnancies, and the epithelium is innocuous as long as it remains attached

to the villus and does not penetrate the surrounding tissues. Kröner[5] suggests that possibly deep implantation of the ovum may favour the development of chorio-epithelium, but against this may be urged the fact that in all uteri with adherent placentæ the villi will be found to have burrowed deeply into the muscular tissue without any intervening decidual tissue. In this instance, Veit speaks of these villi as being "deported," but this application of the term is misleading, as they remain attached to their source of origin and the metastases are due to an actual deportation or migration of portions of villi or masses of cells to more or less distant parts by the bloodstream.

Etiology.—Pregnancy is the great predisposing factor in the causation of chorio-epithelioma. and, therefore, it is more prevalent during the period of woman's greatest sexual activity than at any other age. The average age in Teacher's[6] list was 35, with slight rises at either extremity due to the tendency of immature or old uteri to produce abortions, especially hydatid moles. In my own list of 227 cases published in 1905,[7] the age was not stated in 19. Four were under 20, 105 were between 20 and 30, 80 between 31 and 40, 57 between 41 and 50, and 12 over 50 years of age. While pregnancy precedes the great majority of cases, it is not an essential factor, the disease having been observed in young girls before the onset of menstruation, in women well past the menopause, and even in the male. Bostrom[8] saw a man aged 32 years who was operated on for cerebral tumour which the microscope showed to contain decidual masses and the autopsy revealed metastases in the lungs and on the peritoneum, all of which contained chorio-epitheliomatous tissue. Ritchie performed an autopsy on a man in whose mediastinum were two masses, one of which was a dermoid and the other a tumour composed of cells similar to those seen in the disease under discussion. Two of our own confreres, Drs. Keenan and Garrow, have at present a patient from whom a diseased testicle was removed, and who had cutaneous metastases composed of true chorio-epithelial tissue. Those cases in which the disease does not follow pregnancy, are probably due to one of two causes. Either it arises from teratomata or there has been inclusion by the developing ovum of some trophoblastic cells which have lain dormant until some mysterious, undetermined agency has caused their active proliferation.

Hydatid degeneration of the chorion has an undoubted influence in predisposing patients to this malady. In my own series, the nature of the pregnancy was stated in 262 cases; 36.78 per cent. were seen to follow molar pregnancies; 31.80 per cent. followed abortions, and 26.43 per cent. occurred after full term labours. Gebhardt states that one

pregnancy in every 728 is terminated by the formation of a mole, while Williams gives a much lower ratio, viz: 1-2400. Berry Hart claims that only one mole in every thousand becomes malignant, which is not a very high rate of malignancy.

Disease of the ovaries is an important complication of this disease, and accompanies it with such frequency that some authors claim that it has some influence in its causation. Usually, it takes the form of excessive luteal development, especially in the formation of cysts, but it is difficult to determine the relation between the two conditions, as in many cases of chorio-epithelioma not even a corpus luteum is seen, and Seitz[9] has proved that lutein elements are increased in every pregnancy. Experiments have even been carried out which seem to prove that the successful termination of a pregnancy depends upon this increase in the lutein tissue.

Pathological Anatomy.—Examination in situ with the naked eye shows the growth to be an irregular, diffuse, fungous mass deeply implanted in the uterine wall by numerous prolongations which run between the bundles of muscular fibres. At other times the surface is rough, ulcerated and coarsely ragged, with villous vegetations. At the seat of the disease, the uterine wall may be almost or entirely eaten through. Solivij[10] reports a case where the disease had penetrated into the parametrium. More rarely, the growth may be pedunculated or the tumour may be sessile, nodules of it lying beneath the mucous membrane, which is apparently intact. The tumour varies considerably in size; it may be as small as a marble, but almost never is larger than a fœtal head at term. In colour, it is usually greyish, with dark hæmorrhagic spots, but it may be either dark green or bright red. The growth is usually soft and friable in consistence, never being firm as in fibroid disease, or hard, as is seen in ordinary epithelioma. It is usually situated high up near the fundus of the uterus, but the vagina may be the primary site and cases of this have been reported by Landau and Büsse. Landau's[11] patient was a girl of twenty, who had previously enjoyed the best of health. She was admitted to his clinic on November 9th, 1900, having been last "unwell" in the middle of the previous August. At the end of October, pain in the lower abdomen and bleeding came on. She was examined and the external os found to be closed. Curettage revealed nothing, but she suffered from repeated attacks of hæmoptysis. On November 9th, Landau found the uterus and ovaries to be healthy, but he discovered two swellings in the lower part of the left wall of the vagina near the introitus. One of these was the size of a bean, while the other

was about twice as large. They looked like thrombosed veins and the mucosa over them was ulcerated, with blood at the base of the ulcer. No physical signs of pulmonary disease could be discovered The vaginal masses were removed and the uterus curetted in February, 1902. Microscopic examination of sections of the nodules showed typical chorio-epithelioma, while the curettings presented nothing abnormal.

Contrary to most uterine growths, secondary deposits occur both early and frequently in chorio-epithelioma, and this fact may be considered as symptomatic of the disease. Extension takes place by means of the blood-vessels, and in many specimens one can see the tumour cells projecting into the blood-spaces or even lying loose there. A case reported by Lockyer, however, suggests their transmissibility through the lymphatics as well. The patient was 26 years old and had given birth to a full term child four weeks before coming under observation. Ten days after labour, she began to have dragging pains in the vagina accompanied by a brownish discharge, and ten days later a lump appeared in the groin. This mass did not show any glandular structure, but its appearance and situation were those of the inguinal lymphatics. The lungs are the organs which are the more prone to be affected secondarily, thus accounting for the cough, dyspnœa, hæmoptysis, etc., so often met with, and after the lungs comes the vagina. Here, the growth usually presents itself as a soft violet coloured nodule, which rapidly increases in volume, ulcerates and bleeds profusely. Eirman's statistics show 28 pulmonary to 20 vaginal metastases, while in my own series, there were 103 pulmonary and 72 vaginal deposits. The nervous system may be affected as may also the bones, and none of the viscera have escaped.

Histology.—The typical elements of this tumour are (1) Small well-defined polyhedral cells with large vesicular nuclei packed together in masses without any connective tissue between them. (2) Large multi-nucleated masses of protoplasm (plasmodia or syncytia) in which no definite cell boundaries are visible. (3) Large cells, sometimes mono- and sometimes multi-nucleated, some of which resemble decidual cells, others being identical in character with the multi-nucleated giant-cells which occur in the decidua serotina. These in some parts are arranged in cell masses without intervening stroma, while in other places they are infiltrating and destroying adjacent tissues after the manner of sarcomata. The cells of the first class are those of Langhan's layer. When young, they are small, but they increase in size with age. Their nuclei contain a fine intra-nuclear network and are easily stained. They also contain glycogen. These cells of Langhan's constitute neither an im-

portant nor a necessary element in chorio-epithelioma and may be completely absent in undoubted cases of this disease. The same statement does not hold good, however, in regard to the syncytial masses, these being always present in these growths. The plasmodia or syncytia are not true cells, but are simply ill-defined masses of protoplasm with one or more nuclei. The protoplasm is usually homogenous and opaque and takes the staining reagents readily. The nuclei are small, oval or round, and are scattered throughout the mass without any semblance of order. They multiply by direct division and may be vacuolated. The syncytium forms the boundary of the growth, i.e., it is seen at the periphery. In the centre of the neoplasm, no vessels with true walls are seen, but the growth is nourished by lacunæ, the walls of which are composed of syncytial masses which penetrate the uterine wall. In doing so, they send long processes between the muscular bundles which run along the vessels and ultimately penetrate their walls. Before actually opening into the vessels, however, they cause a weakening of their walls, thus allowing of a localized dilatation of the vessel, which gives it an appearance of being thrombosed or varicose. After entering the vessel, these plasmodia actively proliferate and act in one of two ways. The mass in the vessel may form a thrombus, which may itself go to some distant part, or it may give off cells or smaller processes, which in their turn, travel with the blood stream and so give rise to new foci of disease. Or the thrombus may form and remain where it is, becoming canaliculized and taking the place of the vessel wall. The above process explains the manner of spread of the disease as well as the hæmorrhages which accompany it. Haultain[12] thinks that many cases of cure may be explained by the blood being poured out around the neoplasm and cutting off its nourishment by pressure.

Marchand recognizes two forms of chorio-epithelioma, viz: the typical and atypical. The former is characterized by the presence of syncytial masses, sending off branches in various directions, thus forming a network, the strands of which are covered with nuclei and in whose meshes are clear cells which vary in number. In the atypical variety, the cells are irregular and compact, with very large deeply stained nuclei, and, while multinuclear cells are present there are no continuous plasmodial masses.

Symptoms.—Chorio-epithelioma may begin very insidiously by bringing out symptoms of some very different malady, as is seen in the case reported by Büsse.[13] This patient had a fatal hemiplegia and the autopsy revealed the presence of chorio-epithelioma affecting the right Sylvian

artery, with secondary deposits in the liver, spleen and right heart, the genitals being quite free from the disease, although the patient had suffered from a miscarriage six months previously. Usually, however, it is uterine hæmorrhage which first attracts attention. This bleeding is marked by its severity and its resistance to treatment, even curettage being of but very evanescent benefit. The blood loss rapidly impairs the patient's health; she loses weight and the skin becomes waxy. Between the hæmorrhages, there is a discharge which may be either serous, serosanguineous or smoky, and which has a foul odour. Local pain is either entirely absent until the later stages of the disease or else but slight. The patient may have chills, fever, vomiting, cough, purulent expectoration, hæmoptysis, nervous affections, etc., which are produced by the metastases, or in the case of the chills and fever by sepsis. Examination of the patient, where the uterus is the primary site of the disease, reveals that organ to be enlarged, but the amount of this enlargement varies, it rarely, however, being bigger than a fœtal head at term. The surface may be either nodular or else smooth and even. Per vaginam, the cervix may be felt to be soft and the os to be so patulous as to permit the entrance of the examining finger into the uterine cavity, where one may find a mass of soft, spongy material, resembling placental tissue. This growth is usually situated on the anterior or posterior wall of the uterus, near the top of the fundus While exploring the cavity, the finger may remove a fragment of tissue for microscopic examination. Pigmentation of the skin, which is so often seen to accompany the usual forms of malignant disease, so far has not been recorded in chorio-epithelioma.

The duration of time which may elapse between pregnancy and the onset of the disease varies. Usually only two or three months intervene, but McCann reports a case with a nine years interval, Fleischman six years, and several with an interval of from two to three years. My own first patient afflicted by this disease had been delivered of a molar ovum three and a half years before showing any evidence of malignant trouble. There may, however, be no interval at all, the growth developing during the progress of a pregnancy.

Prognosis.—Generally speaking, chorio-epithelioma may be considered to be one of the most malignant tumours which attack the uterus. If not interfered with, death usually supervenes in a few weeks or months. but occasionally the patient may live for one or two years. If discovered early and treated radically, the patient may recover, and the same happy result has been reported even where no treatment was carried out; but in these cases the diagnosis has been doubtful. However, well authenticated

cases have terminated favourably where only part of the growth was removed. In connection with this, a case reported by Dr. Charles V. P. Noble is of interest. In November of 1900, he removed a uterus for chorio-epithelioma. The bladder wall was also involved and the tumour implicating it was not touched, as its removal would have called for too extensive an operation. The patient made a good recovery from the operation and died of some rather acute pulmonary trouble in September of 1905. Dr. Noble saw her a few days before death and could then find no sign of any tumour or swelling in connection with the bladder or any other pelvic organ, so that it is strongly probable that the lung trouble was not consequent upon the former disease, as if any recurrence had taken place it would have been most likely to have done so in the bladder wall.

Velits considers[14] that spontaneous cure may result from necrobiosis. "as shown by the lowered vitality and the disappearance of the cells of Langhan's, and the appearance of wandering cells which shows the separation of the syncytium." Cases similar to that of Noble; where the secondary nodules have not been touched, but hysterectomy has been performed and the patients have made permanent recoveries, have been reported by Albert, Kolomonkin, Marchand and others.

Those cases which follow moles are less virulent than those which are preceded by ordinary pregnancy, and, of the latter, those ending in abortion appear to have the highest rate of mortality. In my own series, the mortality was: after moles, 52.85 per cent.; after abortions, 63.75 per cent.; and after full term deliveries, 54.32 per cent.

There is nothing in the appearance of the elements of the tumour which will help very materially in arriving at a decision regarding the ultimate fate of the patient, except that where you have a great number of the cells showing subdivision of the nuclei, you may expect a fatal result within a short time. The invasion of connective tissue by the epithelial cells has been thought by many to indicate malignancy, but Loeb[15] has shown that in cases of transplantation of skin, epithelial cells were seen to be able to penetrate, not only connective tissue, but also even cartilage without being malignant. Velitz claims that the presence of wander-cells in the neighbourhood of chorio-epithelial growths is evidence of degeneration of the cells of that growth and so warrant a favourable prognosis, but Fleischman, Herman and Schmauch dispute this theory on the ground that it only applies to that group of cells which resemble puerperal wander-cells, and the distinction between these two groups of cells is not always easy.

The number of Langhan's cells in a tumour will be of some assistance, Schmauch saying that "the simple presence of Langhan's cells in

larger numbers and their appearance in foci between muscle cells will always be sufficient to declare the case to be malignant." The atypical cases, composed of cells of the character of wander-cells and giant-cells without plasmodial masses have a favourable prognosis.

Diagnosis.—All cases of hæmorrhage from the uterus following pregnancy are not due to chorio-epithelioma, but in cases where it is severe and difficult to control, one should be suspicious, especially if the pregnancy has terminated in the discharge of an hydatid mole. It may be due to retention of products of conception, posterior displacements of the uterus, endometritis, inversion, carcinoma or some general systemic disturbance. The careful use of the curette with examination of the scrapings, will, however, usually clear up the diagnosis. Do not trust to the result of the curettage alone, as at least one case has been reported where it was found that the growth was distinctly pedunculated and the curette had gone all around it without touching it at all. Where curettage for hæmorrhage following pregnancy is followed by more blood-loss, especially if this is excessive, and cannot be controlled by either drugs or local treatment, where there is any foul discharge and cachexia, treat the case as one of chorio-epithelioma, and you will seldom be wrong. In fairness to our friends the pathologists, it is only just to say that it is extremely difficult to form any opinion as to the necessity or otherwise of operation by an examination of the scrapings, as, to be sure that removal of the uterus is necessary, you ought to find the malignant cells scattered through the muscular tissue, and, as a rule, none of this latter tissue is removed by the curette.

Treatment.—The treatment may be preventive, palliative or curative. The former consists in careful attention to the interior of the uterus after pregnancy, especially where this has terminated in an abortion. Before we knew how serious a condition might follow an expulsion of an apparently normal ovum, it was considered good treatment to leave an ovum, the subject of a "missed abortion," in the uterus for an indefinite time to see if it would not come away spontaneously. The same view regarding the treatment of a retained fragment of placenta was held by many. In the light of our present knowledge, however, I think that this line of treatment will be abandoned for one much more energetic and radical and that these foreign, and potentially dangerous bodies, will be removed with great care and thoroughness as soon as discovered, in order to prevent placental grafting with its possible serious results.

The palliative treatment is only to be adopted in cases where the growth cannot be removed. Tonics are indicated by the debility of the patient. The uterus should be curetted, douched with an antiseptic

solution and packed, and caustics or styptics may be applied to the interior of the uterus with benefit. All nodules in the vagina should be excised thoroughly and the incisions necessary for that purpose closed by suture. Pain and other complications are to be combatted as indicated.

Where there is any chance of curing the patient, early and complete removal of the growth should be effected. If the uterus is the seat of the primary tumour, the whole organ should be excised, the appendages being removed with it, by either the vaginal or abdominal route as seems best to the operator. All enlarged glands are to be removed at the same time, even if they do not ultimately turn out to be infected by the growth, as it is impossible to determine this macroscopically.

The following are the reports of the cases which have occurred in Canada up to the present date:

1st. Writer's first case, reported in the Montreal MEDICAL JOURNAL, September, 1905.

Patient was 47 years of age and a unipara. Three and a half years before the onset of the symptoms of the present trouble, she was delivered of an hydatid mole. In June, 1904, she began to have an hæmorrhagic discharge from the vagina, and this has continued up to the time of her admission to hospital. At first, the discharge had no odour, but during the last few weeks it has been very disagreeable, and she has lost flesh. For the last five months she has been losing freely almost all of the time.

Until just before leaving for home after the operation, there was no sign of pulmonary involvement, but at that time she began to have a cough. Nothing abnormal in the lungs could be made out on physical examination.

The examination of the genitals revealed a mass, ovoid in shape, attached by a comparatively narrow pedicle to the anterior vaginal wall and quite free from the uterus. It was about the size of a hen's egg, freely movable and of a greyish colour. The uterus was felt to be slightly enlarged and hard and its mobility was limited. To the left of the uterus could be felt a hard mass which was about the same size as that in the vagina.

The vaginal mass was removed under an anæsthetic and the uterus was curetted, but all of the diseased tissue could not be removed on account of its having extended deeply into the pelvis. The cavity was closed over by catgut sutures.

The patient went home, but died in about four months, fresh nodules of the disease having appeared in the vagina. The uterus also became considerably increased in size, evidently becoming the site of a metastatic

growth. No autopsy could be obtained, so that one cannot speak with certainty as to the location of metastases; but as the patient suffered from cough before leaving hospital and a great deal of dyspnœa after arriving home, it is, at least, probable that there were secondary nodules in the lung.

Nothing abnormal was seen in the sections taken from the scrapings of the uterus, but those made from masses of the tumour of the vagina showed a new growth in the form of villi projecting into masses of degenerated tissue and blood, part of the latter being clotted and more or less organized. These villous-like processes contained numerous cells, closely packed together, with vacuolated nuclei; larger mono- or multi-nucleated cells, polygonal in shape; and, lastly, multi-nucleated masses of protoplasm without any cell-border.

2nd. Dr. Howitt, of Guelph, sent a uterus to Dr. John McCrae, for examination. (Case not reported).

Patient was 34 years old, had given birth to 10 full term children, and had suffered one miscarriage. Two weeks after the abortion, the woman began to have hæmorrhage from the uterus. It was profuse and did not yield to any kind of treatment. The uterus was felt to be somewhat enlarged and soft with a patulous os.

Complete hysterectomy was followed by death of the patient from "metastatic deposits in the lung." No autopsy was obtained.

Dr. McCrae has informed me that the uterus was enlarged to measure 11 x 6 x 9 cm., and that in the fundal region lay a rounded mass measuring 3 x 2 cm., firmly attached to the posterior wall about 2 cm. down from the highest point of the cavity. This mass was whitish in colour, firm in consistence, and, when finally hardened artificially, broke away from the uterine wall, leaving a deep hollow. Sections of the growth showed that it was composed of Langhan's cells, large polygonal cells and syncytial masses, i.e., typical chorio-epithelial elements.

The next three cases were reported by Dr. M. J. Ahern, of Quebec, in the *Bulletin Médical de Québec,* July, 1907, and I am indebted to him for the notes.

3rd. Woman, aged 44 years, had given birth to eight full term children. She had four other pregnancies, one of which had ended in the discharge of an hydatid mole at the eighth month, this being followed by a severe hæmorrhage which was most difficult to control. Four months before admission to hospital, she had passed a second mole, this time at the second month of pregnancy. The lochia stopped on the eighth day, but two days later, she began to lose blood, which loss soon became very excessive. It was absolutely unaffected by treatment, even curettage being

ineffectual. Uterus was enlarged and the os sufficiently dilated to admit the index finger. Two masses could be felt to be attached to the uterine wall, one being firm and the second soft and friable. Total hysterectomy was followed by recovery and the patient was well when the case was reported three years after operation.

On examining the interior of the uterus after removal, one small, glistening nodule was seen in the upper part of the posterior wall. To the left of this was a cavity filled with material resembling blood-clot, into which the finger could be easily forced. The adnexa presented nothing unusual. Microscopically, the invading masses were seen to consist of Langhan's cells and syncytium.

4th. Age 30. This woman had given birth to three full term children, one being born dead, and one pregnancy had ended in a miscarriage at the fourth month, in June, 1903. She continued to bleed until she entered hospital in the following July, and had suffered pelvic pain for some months. She was thin and pale, with an icteric tint in the skin and conjunctivæ. There had been cough and expectoration of blood for some time. There was a malodourous discharge from the uterus. The latter organ was felt to be enlarged, sensitive, and mobile. On the posterior vaginal wall were three bluish nodules, resembling hæmorrhoids. Curettage was attempted but had to be abandoned on account of hæmorrhage, and the patient died in a few days. No autopsy was obtained, but Dr. Ahern reports the diagnosis as "chorio-epithelioma with metastases in the vagina and lung."

5th. Age 19. Patient had given birth to two sets of twins. When the last were born, one was normal, but the other ovum had developed into an hydatid mole. This delivery was followed by severe post-partum hæmorrhage. One month later, the woman began to lose blood, and this hæmorrhage resisted all kinds of treatment. When she entered hospital, the uterus was enlarged and the external os admitted the index finger with ease. Total abdominal hysterectomy was followed by recovery.

The adnexa were seen to be healthy. On cutting open the uterus, two friable nodules were seen on the wall. Sections of these showed a similar picture to that seen in case 4.

6th. Drs. Garrow and Keenan have at present under observation a case which is unique in Canada, and rare in any part of the world. It is one of chorio-epithelioma in the male. The patient is a young man, twenty years old, who bruised one of his testicles getting into a bath. This injury was followed by pain and swelling, for which Dr. Garrow removed the organ. Numerous metastases have appeared in the skin and sections from these and the original tumour show most typical chorio-epitheliomatous formation.

7th. Mrs. K., æt. 38, entered the gynæcological ward of the Montreal General Hospital on the 28th of May, 1907, with a history of having menstruated last on the third of the previous January. Sixteen days prior to admission, she had an attack of abdominal pain for two nights, followed by "flowing," and the blood loss had been continuous ever since. Three days before admission, she had severe cramp-like pains followed by an increase in the amount of the flow and the discharge of a "fleshy" mass, after which the pain and flow became less marked. Her menstrual history was negative and she had never been pregnant. The examination of the pelvic organs revealed a healthy vagina and a uterus which was slightly enlarged, the external os being patulous and cervix soft. An incomplete abortion was diagnosed and the uterus was curetted, examination of the tissue removed confirming the diagnosis. The operation was followed by a rather more profuse flow of blood than is ordinarily seen. She was readmitted on the 21st of November, 1907, complaining of "flooding." Since her return home, she had only been twice "unwell," viz: on July 3rd, and October 3rd, the flow being scanty each time. On November 14th, she began to have a foul smelling discharge from the uterus. This became blood stained the next day and has continued so ever since. On the 18th, the blood loss was very severe, going right through the mattress, and the next day she passed a mass which she said looked "like a bunch of veins." This was the size of a walnut. She has had one or two other hæmorrhages which were preceded by coliky pains. There has been loss of weight and strength.

Local examination, revealed a reddened area around the meatus, but the vagina was healthy. The cervix was firm and closed. The fundus was in good position, mobile, firm, and the size of a two months' pregnancy. The appendages were not enlarged.

On account of the obstinate hæmorrhage, the passage of tissue resembling "a bunch of veins, the foul discharge and the loss of flesh, malignant disease, probably chorio-epithelioma, was diagnosed, and the uterus and appendages were removed." The patient made a good recovery, but before she left hospital, there was a small nodule to be felt in the vagina just below the cicatrix, and she had a cough. Dr. Finley examined the lungs and reported dulness over both bases posteriorly and the usual signs of the presence of fluid in the pleuræ. The pleural cavity was twice aspirated, but only a little bloody fluid found once.

On cutting open the uterus, it was found to measure 12.5 cm. in length with a wall 2 cm. thick. The cervix and lower part of the fundus appeared to be healthy, but in the fundus was a mass the size of a small hen's egg closely incorporated in the uterine wall. Projecting down

from this was a ragged looking tongue of tissue 3.5 cm. in length. This whole mass looked bluish-red. A prolongation into the uterine end of the left broad ligament was seen.

Microscopic sections through this tissue showed it to be composed of muscle into which projected villous-shaped masses of cells, with evident signs of hæmorrhage. These cells were of three kinds. There were the numerous small rounded cells with vesicular nuclei, the cells of Langhan's, larger cells, polygonal in shape, some with single and some with multiple nuclei, and finally, numerous masses of syncytium. In places, small groups of these elements entirely surrounded by muscle could be seen, while elsewhere they appeared in large masses, and scattered throughout the field areas of blood and degenerated cells were evident.

The patient came back to hospital on the 16th of January last, on account of a profuse, foul vaginal discharge, and a sloughing mass 3 cm. in length by 1 cm. in breadth, was seen to involve the anterior vaginal wall, in the region of the nodule which was present when the woman last left the ward. This was curetted away and the edges of the wound so produced were brought together with catgut, union by first intention resulting, and the patient was discharged. She returned to the ward on March 30th, complaining of intense headache and vomiting. There had been a sudden attack of unconsciousness eight days previous. She remained in a comatose condition for some hours and seemed stupid when she recovered her senses. Her eye-sight had been failing for some time, so Dr. Mathewson kindly examined her eyes for me. He found "neuroritinitis in both eyes with hæmorrhages, more marked in the right eye." The patient died quite suddenly on April 3rd.

At the autopsy, which was performed by Dr. Lyman, to whom I am indebted for a very complete report, numerous metastases were found. In the tissue between the bladder and vagina, was a mass of growth about 3.5 cm. in diameter, but the vaginal cicatrix was free from disease. Numerous small metastatic nodules were seen scattered throughout both lungs. The intestines were also studded with small masses of new growth. On examining the brain, the vessels were seen to be congested, and several nodules were noticed to be scattered through the lobes of the cerebellum and one in the right half of the cerebrum. Each of these nodules is dark and hæmorrhagic in appearance and is surrounded by an area of pigmentation.

In conclusion, I wish to thank Dr. Duval for much assistance, Dr. Fraser Gurd for the sketch of the uterus, and Mr. Wade for cutting and staining the sections which were under the microscopes.

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THE GONOCOCCUS AS A FACTOR IN INFECTION FOLLOWING ABORTION OR FULL TERM DELIVERY.

BY

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Probably no subject of equal importance in medical science shows such diverse opinions as that regarding the cause and means of prevention of infection following the discharge of the products of conception from the uterus. Since Mayrhofer, in 1863, Coze, in 1869, and more especially since Pasteur, in 1879, found the streptococcus in the lochia of women suffering from puerperal fever, this organism has been looked upon as the most important bacteriological factor in this disease. The streptococcus being looked upon as the most important infecting agent in puerperal fever, the attention of numerous investigators has been directed towards the presence of this coccus in the vaginal discharge of pregnant and non-pregnant women.

The results of examination have not been uniform, and opinion has been varied regarding the possibility of auto-infection and the value of ante-partum douches.

Although many observers have proved the prevalence of gonorrhœa in modern society, few have been able to show that it is of definite importance in the production of more important forms of puerperal fever.

As a result of a series of careful bacteriological examinations, the following notes have been prepared. In them I shall attempt to show the comparative prevalence of the gonococcus in puerperal fever. I shall suggest a reason for the different results obtained by various examiners, as well as the different opinions based upon these results.

Experiments by Duhrssen, Bumm and others, as well as my own ob-

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servations, appear to prove that the normal vaginal, cervical and urethral epithelium is not attacked by the ordinary pyogenic cocci. When, however, the resistance of the parts is overcome by such an organism as the gonococcus, other bacteria seem able to produce their characteristic lesions. This fact, I believe, is of importance in our consideration of post-partum infections, and will help, in part, to explain the diverse opinions held by various authorities upon the question of auto-infection.

The number of cases in my series is small. The results are, however, very suggestive. I believe that the careful examination of the lochia at the onset of fever would demonstrate the gonococcus in a large number of cases. It does not seem unreasonable to suppose that the streptococcus and other pathogenic organisms which are constantly present in the rectum and the external genitals should be ready to invade the vagina whenever an opportunity is given. The gonococcus present in the cervical glands or other part of the genital tract takes advantage of the bruised condition of the tissues after labour and sets up an inflammatory process. This process paves the way for a secondary infection by more pathogenic organisms, such as the streptococcus. These secondary invaders having gained entrance, the disease becomes more serious and presents graver symptoms.

The mortality figures of hospitals, in other ways of equal merit, do not materially differ where douches are used during the latter days of pregnancy or not. At the same time, although the installation of aseptic methods has enormously reduced the mortality from puerperal infection, there still persists a certain number of cases occurring year by year. Many of these cases occur in women in whom labour has been spontaneous or even precipitate. Again, the mortality rate does not give an adequate idea of the incidence and importance of puerperal fever. Many patients are only saved after the most careful nursing and constant attention. Others after a severe illness for a few days are apparently cured and leave the hospital well. A still larger class run a mild fever for two or three days and are discharged after an otherwise normal puerperium. It is women of these classes who return within a few weeks or months to consult the gynæcologist for inflammation of the uterine appendages, pelvic peritoneum, or the uterus itself. How rarely is a pelvic abscess or pyosalpinx found in women who have never been pregnant!

No matter what the opinion held by obstetricians regarding the value of douches in healthy women, all are of the same mind regarding the management of gonorrhœa. All admit that this condition demands active treatment. As a rule, however, the failure to carry out such treat-

ment is supposed to result in a mild form of infection from which the patient may be expected, in the great majority of cases, to recover in a few days. The presence of the gonorrhœal condition is usually inferred from the presence of an acute vaginitis or vulvo-vaginitis, with redness, and perhaps, swelling of the vaginal walls or vulva, accompanied by a profuse creamy greenish yellow discharge. In the absence of such vaginitis signs of urethritis are looked for.

The gonococcus is a much more frequent inhabitant of the vagina than such a diagnosis would lead one to believe. In a series of examinations made by the writer of the vaginal discharge of 113 women, the gonococcus was isolated 52 times. These cases represent the average class of women applying for treatment for pelvic disease at hospital clinics. This group of cases consisted of 13 of acute vaginitis, from eight of which the gonococcus was isolated; 36 sub-acute cases showed the gonococcus in 22; from 44 cases suffering from chronic pelvic disturbances of one kind or another, the gonococcus was isolated 22 times. Twenty cases showing no evidence of inflammation, examined as controls, showed no gonococcus. The results of this series of examinations show that the gonococcus is a common factor in the production of pelvic disease.

The method of isolation employed in the above series of cases, as well as the cases reported in this paper is simple. The material to be examined is procured upon a sterile swab, such as is used in ordinary routine bacteriological examinations. The cervix is exposed by means of a bivalve speculum. After thoroughly sterilizing the external genitals the cervix is cleansed with a series of sterile cotton sponges. The point of the swab is then passed through the os and thoroughly rubbed over the endometrium. A tube resembling that used by Döderlein, has been used in a number of cases. This tube has not shown itself to be an adequate method of obtaining material, as it procures only the most fluid part of the discharge which is well known to contain the bactericidal properties in largest proportions. The result has been that although numerous organisms are usually seen in the smears prepared from the fresh material, rarely is any growth effected. Within as short a time as possible the material on the swab is surface seeded over blood agar. With some experience isolated colonies may be readily procured by this method. As a rule, within 24 to 48 hours gonococci, if present, will appear as small bluish-grey, semi-transparent colonies varying from .5 to 1.5 m.m. in diameter. The observer accustomed to the growth of the gonococcus and other organisms resembling it will rarely be in doubt as to the nature of the bacteria when a typical growth is produced on blood agar. The

results of a very complete test of the relative value of cultural methods of identification, and stained smears of fresh discharges in the above mentioned series, show that the fresh stained smear preparation is of little value. In the examination of uterine lochia, the fresh smear is of more help. Here, also, however, no definite diagnosis can be made without cultivation of the organisms. The same features which render the examination of the fresh lochia from the uterus of more value than that of the vaginal discharge in general, viz: the larger number of gonococci usually present and the smaller number of contaminating organisms, renders the isolation in cultures correspondingly more easy.

During the past year I have had the opportunity of examining the lochia from 14 cases of severe endometritis, following abortion or full term labour. In all cases the women suffered from definite constitutional disturbances. In all, the temperature rose to above 103° F. Three patients died and came to autopsy; two others developed metastatic pyogenic processes. In addition to the fourteen cases examined during life, the bacteriological factor has been determined in six other cases coming to autopsy. Of the twenty cases, four followed abortion; the other sixteen had been delivered at full term.

The organisms isolated were as follows:—

Streptococci, 10 times in 7 fatal cases.

Pneumococci, 2 times in 1 fatal case.

B. Ærogenes capsulatus, 1 fatal case.

Gonococci, 5 times and 1?* 4 times along with the streptococcus.

B. Coli, once in almost pure culture.

B. Coli was also found in larger or smaller numbers in practically every case.

Staphylococci, both aureus and albus were found in large numbers and saprophytic organisms were frequently found.

In addition to the six pathogenic organisms a Gram-negative coccus, not resembling the gonococcus either morphologically or in culture was isolated twice.

In a certain number of cases no growth was procured. This was probably due, in a few cases, to the antiseptic douches which the patients were receiving. Four negative results were undoubtedly due to the use of a tube in the collecting of the material for examination. One of the cases which gave no growth was probably due to the gonococcus.

In our series of twenty cases we have five cases from which the gonococcus was isolated and one in which it was almost certainly present. Only one of the cases infected with the gonococcus was fatal. Death was

* See case 2.

apparently due in this case to a secondary streptococcus infection. All cases, however, suffered from high fever and rapid pulse; five had chills. The onset of fever in these cases was early with the exception of one case following abortion (case 3). Two cases (1 and 5) had a fever of 102° F. before removal from the confinement table. In one case (case 6), the temperature rose to 102° on the second day following delivery; it returned to normal the next day, reaching 104° F. again on the eighth day. The remaining two cases developed fever on the second and fourth days respectively.

As is usual with all forms of puerperal infection the patients did not realize the severity of their condition. As a rule they claimed to feel well and protested against being kept in bed. Fever lasted as a rule from one to two weeks. All patients with the exception of case 4, which died, recovered strength comparatively rapidly once free from fever.

Two cases had a profuse creamy, yellow, purulent discharge. In two (cases 3 and 4) the discharge was moderate or scant in amount and muco-purulent in character. Cases 1 and 2 presented the false membrane covering the vaginal walls usually associated with a streptococcal infection.

It has been found in the examination of vaginal discharges of acute vaginitis that other pyogenic cocci such as streptococcus and pneumococcus are not infrequently present in large numbers, sometimes in such large numbers that they seem to be the only organism demonstratable. The history, subsequent examinations or course of the disease, shows in nearly all such cases, that the gonococcus of Neisser is the primary pathogenic factor. That a similar combination of the gonococcus with one or more pyogenic bacteria in the endometritis following child-birth occurs, several of the following cases will prove.

Case 1.—Bacteriological No. 07.799. Mrs. C. G.; primipara. Patient was admitted to the Montreal General Hospital, service of Dr. Lockhart. She had been confined four days previously and was suffering from a bloody muco-purulent discharge, her fever was high, 103 2-5; her pulse 120. The vaginal walls and vulva were covered with false membrane with numerous underlying areas of excoriation. During the last six months of pregnancy, the patient had suffered from a profuse greenish, creamy discharge, with redness of the vaginal outlet and excoriations. She had been treated with douches of creolin and mercury bichloride. Before patient was returned to bed after delivery her temperature had risen to 102° F., and her pulse was very rapid. The discharge and the severity of her symptoms increased until her entry into hospital. She was put under constitutional treatment and frequent douches, and left the hospital well on the twenty-fifth day.

A smear stained by Gram's method by the doctor in charge one day post-partum contained numerous gonococcoid organisms.

A bacteriological examination of the lochia the day after admission showed streptococcus pyogenes present in large numbers along with a mixture of various Gram-positive and negative bacilli.

In this case, although the gonococcus was never culturally isolated, it appears justifiable in the light of the persisting acute vaginitis, apparently gonorrhœal, and the result of the smear diagnosis of the physician in charge of the case, to classify it as undoubtedly gonorrhœal in origin. At the time, however, of the patient's entry to the hospital, she presented the picture of a phlegmonous vaginitis usually associated with infection by the streptococcus pyogenes. That this organism was really the cause of the severity of the patient's symptoms the bacteriological examination proved.

Case 2.—Mrs. J. G., aged 32, primipara; bacteriological No. 07.722. Patient, three days post-partum, had a chill and developed a high fever and rapid pulse with more or less profuse bloody slightly foul smelling discharge. Upon the fifth day, post partum, she was brought to the hospital. When examined on the sixth day, the whole vagina was covered with a false membrane of a foul-smelling sloughy material. Previous to delivery there had been no evidence of any inflammatory disturbance. Delivery had been instrumental and difficult. The strictest technique had, however, been employed.

BACTERIOLOGICAL REPORT.

Smears taken from the cervix on the second day after the chill stained by Gram's method, showed numerous pus cells, together with an enormous number of all sorts of organisms, including large and small bacilli, many cocci retaining the Gram's stain, and a few biscuit-shaped Gram negative diplococci.

Planted upon blood agar, gave a mixed growth of staphylococcus albus and gonococcoid organisms, as well as several saprophytic organisms.

This case has been included in the series, although the large number of contaminating organisms made a diagnosis of the gonococcus impossible. This case has been placed in Table A as gonococcus.

Case 3.—Bacteriological No. 07.686, Mrs. A. P., aged 25; multipara. Patient was admitted to the hospital suffering from pain in the right leg and arm. She had a scant bloody purulent uterine discharge. There was no tenderness in the pelvis. The condition in the leg developed into a definite femoral phlebitis. The right wrist became the site of a septic arthritis.

Three weeks prior to admission the patient had aborted, giving birth to a four months' fœtus. She had remained in bed two days following the miscarriage. She continued to lose blood for over two weeks, when she developed a fever and a feeling of malaise. She was curetted, but her condition did not improve.

Patient had had four full term children, the youngest being ten years old. Up to the present abortion she had had but scant leucorrhœal discharge and no other symptoms of pelvic disturbance.

Bacteriological examination of the uterine discharge, one day after admission, showed numerous pus, few epithelial cells. Many Gram negative cocci were seen occurring in pairs, both inside and outside cells. Numerous chains of six to ten were also seen of cocci retaining the Gram's stain.

Planted on blood agar, in twenty-four hours there was a profuse raised semi-transparent growth of greyish colonies, measuring from .5 to 1.5 m.m. in diameter. Stained by Gram's method these colonies showed Gram negative bean-shaped diplococci in pairs and fours. A very few colonies of five dark points made up of Gram positive cocci in chains were also seen.

Blood cultures taken upon two occasions were sterile. Pus from several metastatic joint conditions and abscesses showed streptococci in pure culture, with absolutely no evidence of gonococci.

This case exemplifies two characteristics of gonorrhœal infection. In addition to the fact that an undoubted gonorrhœal endometritis was followed by streptococcus infection of the uterus which ultimately became general, this case demonstrates the chronicity of gonorrhœal lesions and the freedom from discomfort which the patient often enjoys. In all probability, the ten years' period of sterility immediately preceding her last pregnancy had been due to what is by some considered to be the conservative salpingitis which protects women suffering from gonorrhœal infection from the dangers of child-birth and pregnancy. This protection in some way being overcome, pregnancy ensued only to be followed by abortion and an almost fatal termination.

Case 4.—Mrs. L. T., widow; aged 29; bacteriological No. 07.955; autopsy No. 08.14. Patient admitted to the hospital, service of Dr. F. A. L. Lockhart, December 27, 1907. She had aborted at three and a half months two days before, since when she had considerable bleeding.

Before admission her temperature was 100° F., and her pulse 112. Six hours later these were: temperature 104° F., pulse 130.

The uterus was cleaned out with the finger and lightly with a snarp curette and douched out with sterile saline solution. A large piece of

foul smelling chorionic tissue was removed. Microscopically, this tissue showed numerous polymorphonuclear leucocytes. From December 28th to January 9th, the patient's temperature was septic in type, and during this time she suffered from chills of more or less marked severity. She complained of but little distress, always replying when asked regarding her condition "I am better." Her respirations were extremely rapid and at one time she had a sharp attack of dyspnœa with cyanosis and gasping.

On January 9th, 1908, a mass was palpable to the left of the uterus. A vaginal incision was made under spinal anæsthesia and a small quantity of pus discharged. An abdominal incision was made, and the left ovary, which was filled with pus, was removed.

The patient's condition, however, did not improve and she died January 10th, 1908.

BACTERIOLOGICAL REPORT.

Two examinations were made of the uterine discharge. B. 07.955.

Stained by Gram's method, the fresh pus shows numerous pus, few epithelial cells. A small number of Gram positive cocci are seen mainly in pairs. There are numerous Gram negative bacilli with rounded ends, for the most part occurring singly. Moderate numbers of diplococci gonococcoid in shape, decolorizing by Gram's method are seen, both inside and outside cells. Planted upon blood agar, gave no growth in 48 hours. The failure to obtain a growth in this examination was undoubtedly due to the antiseptics being used in the douches.

Second examination, B. 08.-8.

Stained by Gram's method, the fresh pus shows large numbers of pus cells. Numerous Gram positive cocci in pairs and chains of four are seen. Many Gram positive and negative bacilli are found. There are also a few pairs of well formed biscuit-shaped Gram negative cocci.

Planted upon blood agar in 24 hours, the surface was moderately covered with isolated colonies of B. coli. Fine colonies of Gram positive cocci in pairs, also two fine greyish semi-transparent colonies 1 m.m. in diameter of gonococci were also seen.

During the course of the disease, blood cultures were attempted upon two occasions, but proved negative.

Autopsy was performed sixteen hours after death.

ANATOMICAL DIAGNOSIS.

Acute diffuse peritonitis; puerperal septuæmia (streptococcus); acute gangrenous endometritis; multiple abscesses of uterus; plebitis with thrombosis of peri-uterine veins; multiple pelvic abscesses; acute vagin-

itis; acute suppurative oophoritis; acute suppurative nephritis; œdema of the lungs; fatty liver; healed gummata of the liver; chronic pulmonary tuberculosis; chronic pleuritis; chronic pericarditis; acute splenitis; congestion of the liver and kidneys; laparotomy; salpingectomy; venesection; vaginal section.

Case 5.—Mrs. D. D.; aged 32; bacteriological No. 07.289. The patient was delivered in the Montreal Maternity Hospital of a full term child. Labour was normal.

From the time of delivery the patient suffered from a fever of 100° F. or more. On the fifth day post-partum, she had a chill and the temperature rose to 104.2°. She complained of little pain and no distress, the uterus involuted well, though a profuse creamy, greenish-yellow discharge developed. No interference was attempted, with the exception of one intra-uterine douche and repeated vaginal douches. Patient left the hospital apparently well, the child, however, developed a severe condition of ophthalmia neonatorum, which led eventually to septicæmia and death.

On questioning the husband, it was found that he was being treated for "kidney disease." This was found, on examination, to be a case of frank acute gonorrhœal urethritis.

Bacteriological report. B. 07.289.

Smear shows numerous pus, few epithelial cells. Many bean-shaped Gram negative diplococci are seen. These are situated, both inside and outside of the pus cells. Many cells present a "typical" appearance, being filled with closely packed gonococcoid organisms.

Planted upon blood agar, in forty-eight hours, a moderately profuse, almost pure, growth of gonococci developed. A similar organism was also isolated from the baby's eyes.

Case 6.—Mrs. S.; aged 26. The patient was confined in the Montreal Maternity Hospital. Labour normal. Two days after delivery, the patient's temperature rose to 101.1° F. It fell to normal the next day, but rose to 102° upon the eighth day; two days later it rose to 104°. The patient's temperature remained up and she left the hospital against the advice of the physician in attendance on the fourteenth day post-partum.

The lochia consisted in a profuse creamy, greenish purulent discharge, which persisted at the time she left the hospital. The child showed no signs of ophthalmia. No history was obtained of any ante-partum inflammatory condition.

Bacteriological report. B. 08.24.

Smear shows numerous pus, few epithelial cells. Many Gram negative bacteria, with rounded ends, were seen, also Gram positive cocci in pairs. One or two pairs of Gram negative bean-shaped diplococci are also found.

In twenty-four hours a culture upon blood agar showed several large isolated greyish, creamy colonies of B. coli, also a few white colonies of staphylococcus albus. Between these larger colonies are seen numerous small semi-transparent colonies of gonococci.

Cases 5 and 6 demonstrate the severity of the disease which an uncomplicated gonorrhœal infection may produce. The unfortunate ending, too, of the ophthalmia in the child from case 5 also brings before us the importance of the gonococcus in the pregnant and puerperal woman.

Although case 2 was probably gonorrhœal, I will, for the purpose of this paper, speak only of the other five cases. In all of these, the infective process began as a gonorrhœal condition. In all the most careful technique had been followed during delivery, nevertheless, five became septic and ultimately suffered from severe infection. In three, this infection was undoubtedly due to streptococci. All physicians dealing with large numbers of pregnant women have seen cases in which fever, at times severe, has followed cases of spontaneous or precipitate labour, in which absolutely no examination of the internal parts had been made at any time. Experience shows, also, that it is in unmarried girls that fever is most frequently met with. It is naturally in illegitimates that gonorrhœa is most frequently found. Cases such as these influence Lenhartz and others to support the prophylactic douche. Many cases occur in which retained secundines, filth of the external parts and other such causes are insufficient to explain the development of the infective process.

In 1898, Burr (34), in an article entitled "Gonorrhœa as a factor in Puerperal Fever," puts the question which he proceeds to answer: "Notwithstanding advancement along lines of antiseptics, etc. . . . . why is there not greater freedom from septic puerperal conditions?" "In the mother herself." He draws attention to the prevalence and chronicity of gonorrhœa and states the idea, which I have expressed above, in the following words: "the gonococcus will share its possessions in apparent harmony with other pathogenic germs, or at an indefinite period quit the field in their favour."

My own experiments, as well as those of many observers, seem to prove that streptococcus as well as numerous other organisms is, undoubtedly present in the lower part of the vagina and about the vulva. Thus, different investigators have had different results owing to different

technique. Williams is probably correct, when he says "that in those cases (in which pathogenic organisms are found in the upper vagina), the infection is probably carried up by the instrument made use of in procuring material for examination." Other opinions and clinical experiences, on the other hand, are due, I believe, to the fact that sufficient account has not been taken, in considering the question of auto-infection, of the chronic forms of gonorrhœa, which give rise to no clinical evidences of their presence.

CONCLUSIONS.

(1) The gonococcus, either alone or as a primary infecting agent, plays a much more important role in the production of puerperal fever than is usually appreciated by most observers.

(2) Various micro-organisms, especially the streptococcus and B. coli are usually present about the vaginal outlet, although apparently infrequently found in the upper part of the vagina of the healthy woman. These organisms are ever ready to attack the tissue whose resistance has been destroyed by the action of the gonococcus.

As corollaries there follow, (a) the necessity for the most careful examination of the history of the patient and of the vaginal discharge early in pregnancy in all cases presenting the least grounds for suspicion. (b) The necessity for more than ordinary caution in examining internally all cases presenting even the slightest evidence of an inflammatory condition.

I wish to express my thanks to Dr. F. A. L. Lockhart for use of cases in the Montreal General Hospital, as well as the physicians of the Montreal Maternity Hospital, for notes upon cases in that institution. I wish also to thank Dr. C. W. Duval for numerous suggestions from time to time.

UTERINE INVERSION.

BY

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An inverted uterus has been defined as "a uterus turned inside out," forming a hollow, pear-shaped mass, projecting into the vagina. Externally it is covered by the uterine mucosa, internally the cavity is lined with the peritoneum, and between these lie the muscular coats of the uterus.

In cases of recent occurrence, the uterine ends of the Fallopian tubes and the utero-ovarian ligaments may be found within the pouch, while the ovaries and upper ends of the tubes lie just above it.

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In cases of long standing, however, only the innermost portions of the broad ligament may be found within, the greater portions of the Fallopian tubes remaining above the inversion. The cavity of the tumour thus formed, is about one inch in length, and its orifice, a narrow slit, opens into the peritoneal cavity.

Various forms of inversion have been recognized, the most important of which are described as acute and chronic. The acute, by far the most common, is practically of puerperal origin, and is usually caused by injudicious pressure on the fundus after delivery, or improper traction on the cord in the removal of the placenta. The chronic form may be simply a continuance of the acute form, for although, according to Hart and Barbour, "toleration of the condition is rare," yet cases have been reported in which the uterus has become reconciled to its new position, and has occasioned the patient little or no inconvenience. Again, the chronic form may be gradually produced along with the expulsion of a fibroid polypus attached to its walls. Three degrees of inversion are recognized, viz:—Simple depression of the fundus, depression of the fundus to the cervical orifice, and complete inversion. Fortunately, complete inversion is exceedingly rare. Samuel Cache speaks of it as a grave but infrequent accident, occurring in his experience twice in 4,600 labours; and John W. Taylor, Birmingham, while reporting a case, states that "this is the only case of absolutely complete inversion that I have ever seen or known of." Yet quite a number of cases have been reported. Moreover, it has been known to follow abortion, as early as the third month of pregnancy, five such cases at least having been reported.

Symptoms.—Speaking generally, these are: hæmorrhage, anæmia, irritability of the bladder, weakness, and pain.

Diagnosis.—In the acute form the diagnosis is easy. If, after the termination of labour or abortion, the above symptoms are present, together with the complaint of something unusual in the vagina, pressing downward, a careful bi-manual examination should be made. Should there then be found occupying the vagina, a red, bleeding pyriform tumour some three centimetres in diameter, larger below than above (Kelly); together with the inability, externally, to palpate the fundus in the pelvis, the diagnosis should be indisputable. But in chronic inversion the diagnosis may be much more difficult. Duhrassen reports a case of twenty years' standing, in which the vaginal walls had become so adherent to the inverted mucous surface of the uterus as to become an integral part of the inversion, and the diagnosis could only be confirmed by the absence of the uterus within the pelvis and the presence of the depression at the cervical orifice.

Prognosis.—If the condition be neglected, the outlook is most unfavourable. A few cases of spontaneous reposition have been reported, but this is an exceedingly rare event. Robert Boxall, in 1904, reported a case in which spontaneous reposition took place three weeks after delivery, and a second case is reported in which it occurred within a few hours of the accident. But, as a rule, inversion is followed by hæmorrhage, which may be continuous or intermittent. Anæmia from loss of blood may follow and become very serious. Prusman, of Berlin, reports a case of inversion following an abortion at the third month of pregnancy, in which case the patient died from extreme anæmia. Again, ulceration followed by sepsis may occur, and a case has been reported of spontaneous amputation of the body of the uterus. But as previously stated, adhesions may form, in the course of time, between the mucous covering of the uterus and the vaginal walls, arresting hæmorrhage and preventing ulceration, the patient experiencing very little discomfort.

Treatment.—The safest and most satisfactory treatment is reposition, either manual or by means of repositors, and this is usually successful when the inversion is of puerperal origin and the attempt made soon after its occurrence.

Two methods of manual reposition are practised—first by taxis, as in reducing a hernia, second by depressing the most prominent part of the fundus, with the fingers or knuckle, steady and continuous pressure being kept up within this indenture. The reinverted tissue thus acting as a wedge, dilates the cervix and passes up into the pelvis, after which the uterus and vagina are to be packed with gauze until the danger of recurrence is past. Elastic pressure by means of the cup-shaped repositor of the late Lawson Tate, has proved successful in many cases, and Granville Bantock reports a case of inversion of two years duration in which reposition was accomplished in twenty-four hours, by means of Aveling's repositor. Again, Boxall considers that constant vaginal douching materially assists the process of reposition. Yet one is not justified in making too prolonged attempts at manual reposition for fear of bruising the parts or lacerating the cervix. In chronic cases, owing to the rigidity of the cervix and neck of the inverted sac, and the fibroid changes in the uterine wall, manual reposition is almost impossible. Moreover, in long standing cases, the peritoneal surface of the uterus becomes considerably smaller than the mucous surface, so that, were reposition possible, the peritoneal surface would require stretching, and the mucous surface would prove too large to be contained within the newly formed cavity. One must then consider what surgical treatment would be safest to adopt under the circumstances.

Various operations have been recommended; but I shall only mention a few of the most important. These may be described as vaginal and abdominal. But the only abdominal operation worthy of note consists in opening the abdomen, dilating the cervical ring by means of fingers or instruments and pushing the body of the uterus up into the pelvis. This method, however, has not proved very successful. Of the vaginal operations two have met with favourable criticism. First, Kustner's method of opening into the peritoneal cavity posterior to the uterus (Douglas's pouch) and incising the neck of the sac sufficiently to enable one to push through the body of the uterus. Second, anterior vaginal uterotomy. This operation is described by John W. Taylor, as follows: A transverse incision having been made along the anterior vaginal wall as close to the inversion as possible, the anterior margins of the cervix are seized on each side of the middle line by volsella, and the uterus divided between them with long straight scissors. As soon as the peritoneum has been opened and the median incision of the anterior wall of the uterus carried beyond the cervix into the body of the uterus, attempts are made to replace the inversion. The sides of the incision are then brought together by fine silk sutures and the vaginal incision united by separate sutures on either side of this. In long standing cases, in which the peritoneal surface has become much smaller than the mucous surface, Taylor found the muscle wall and the mucous surface to bulge through the incision and prevent apposition of the peritoneal edges. He therefore, recommends removal of the excessive tissues before suturing, avoiding undue tension, securing exact coaptation and union, and preventing suppuration.

Should these methods prove unsuitable, there remain amputation of the body of the uterus and complete vaginal hysterectomy.

The case which I wish to report, one of fundal fibroid tumour with inversion, is of special interest, from the fact that the cause was an unusual one, and that, while being of puerperal origin and recognized in its acute stage, treatment was deferred long enough almost to make it become chronic, and there was attached to the fundus uteri a small fibroid tumour. This case I shall take the liberty of reporting fully.

It has been my privilege to see two cases of puerperal uterine inversion, one acute and one chronic. The chronic case, came to the out-patient department of the Montreal General Hospital, complaining of constant hæmorrhage, anæmia, frequency of micturition, general weakness and pain. A bi-manual examination revealed the presence of a pear-shaped mass, occupying the vagina, broad below and narrow above, and from the surface of which blood was oozing. No fundus could be

palpated in the abdomen, but a depression could be felt on the upper narrow end of the vaginal tumour. The patient gave a history of having given birth to a child some three months previously, a difficult forceps delivery, attended and followed by profuse hæmorrhage. Arrangements were made to have the patient admitted to the hospital on the following day; but she did not reappear and I regret to say has not since been seen.

The Acute Case.—Past history—menses began at twelve years of age, were always regular and painless, and lasted from three to four days. She had always been an exceedingly healthy girl. At the time of labour she was thirty years of age, primipara, and had been married ten months. The nine months previous to the onset of labour were uneventful.

History of Illness.—Labour pains began on the evening of August 12th, 1903, and were continuous throughout the night, the membranes rupturing early on the following morning. At 4 p.m., ether was administered and forceps applied. The delivery, a tedious one, was not attended with any complications other than a rather severe laceration of the perineum. Immediately after delivery my attention being given to the infant the fundus was controlled by the anæsthetist, who reported the uterus firm and contraction good. Some twenty minutes later the placenta came away without undue pressure on the fundus or traction on the cord. After delivery of the placenta, the fundus was controlled by myself for about five minutes, when, the anæsthetist having departed, it was entrusted to the care of the nurse while the perineum was being repaired. There was little or no vaginal hæmorrhage at this time. A few minutes later the patient complained of feeling weak and began to yawn. On examination, she was found to be in a state of collapse. Her face was blanched, the radial pulse was absent and the fundus was considerably above the umbilicus. At midnight she was still speechless, only semi-conscious and her heart's action could not be detected with the stethoscope. On the events immediately following I shall not dwell. Convalescence was slow. For three days the fundus appeared to remain about stationary and the lochia were almost absent. From the third to the fifth day the fundus gradually receded until it was below the umbilicus, and a sero-sanguineous discharge was observed escaping from the vagina. By the fifth day the temperature had gradually risen from subnormal to normal and the pulse had gradually decreased to about 100. From the fifth to the seventh day the temperature varied from normal to 100 2-5, and the pulse from 96 to 112. On the afternoon of the seventh day the temperature rose to 101, and the pulse gradually increased to 140. The lochia remained about the same, were very scanty, sero-

sanguineous in character and no clots were expelled, but on the seventh evening a fairly large clot was removed from the vagina.

From the seventh to the tenth day the pulse varied from 120 to 140 and the lochia became profuse, sometimes bright red and at other times dark in colour. Several clots were expelled. During the next ten days, the patient's condition was very changeable and her pulse irregular, varying some days from 88 to 120. But altogether there was a steady improvement in her condition and she felt very well. Yet the hæmorrhage was rather profuse and very puzzling. As the fundus could not be felt in the abdomen it was thought to be fully involuted and no vaginal examination was made. About the twenty-fifth day, the patient complained that "the stitches were hurting her," that she felt as if something were pressing on them. The condition of the perineum was, however, considered sufficient explanation for any discomfort felt in that locality. Throughout the following week the hæmorrhage greatly decreased, yet the patient still complained of pain and pressure in the vagina. An examination was then made and the diagnosis established. The vagina was entirely filled with a pear-shaped mass, from the end of which a small tumour, about the size of a pigeon's egg protruded. The patient was then removed to Dr. Lockhart's hospital, and I am indebted to him for the privilege of reporting the surgical treatment of the case. Under an anæsthetic, careful and persistent, but unsuccessful attempts were made to replace the uterus by manual reposition. The following operation was then performed:

OPERATION.

With the patient in the lithotomy position, the vagina and surrounding parts were exposed and sterilized. As handling the mass caused profuse oozing from the general surface, hot cloths were wrapped around it, and ineffectual efforts to replace it by taxis were made. Each lower lateral corner of the uterus was grasped by tenaculum forceps and downward traction was made. The anterior vaginal wall was then transversely incised just where it was reflected off from the cervix, and, after pushing the bladder out of the way, the uterine wall was exposed. A vertical incision was made through the whole thickness of the anterior wall of the uterus in the middle line from the external os to within half an inch of the tip of the fundus, and even this half inch was invaded in order to shell out a small fibroid tumour. The peritoneal cavity was thus opened and the uterus re-invaginated, that part which was near the roof of the vagina being reduced first. Downward traction was now

made on the uterus by means of tenaculum forceps attached to the cervix on each side of the incision. The two halves of the divided wall of the uterus were then brought together by two rows of interrupted catgut sutures, after which the vaginal incision was closed by a continuous catgut suture and the uterus and vagina were packed with gauze.

Out of the case which I have just reported several interesting questions arise:

First—When did inversion occur?

Second—What was the cause of it?

Third—Could it have been avoided?

Fourth—Was the treatment employed the best possible under the circumstances?

I. It has been stated that during the first few days the fundus could be well defined and remained stationary, and that there was practically no vaginal discharge. One might infer, therefore, that inversion did not begin until after that period. From the third to the fifth day, however, the fundus had descended below the umbilicus and there was a sero-sanguineous vaginal discharge, and, as the temperature and pulse rate had slightly increased by the fifth day, in all probability the first degree of inversion took place about that time.

Again, on the evening of the seventh day, the temperature arose to 101, and the pulse to 140, and a large clot was removed from the vagina. It is likely, therefore, that the second degree took place about that time. Had there been any greater degree of inversion than this on the seventh night, the fibroid tumour could have been felt while the vagina was being explored and the clot removed.

Again, it has been stated that during the three succeeding days, the pulse varied from 120 to 140, and the vaginal discharge became profuse and clots were expelled. And that from the tenth to the twentieth day the temperature and pulse were very irregular and the vaginal discharge unaccountably profuse. One may conclude, therefore, that from the seventh to the twentieth day, the third degree (complete inversion) was slowly and gradually taking place.

II. What was the cause of it? In answer to this question, I submit two theories for consideration. First, from the fact that, in all probability, the uterus was completely exhausted from twenty-four hours of almost continuous contraction previous to delivery, in this exhausted condition, it might easily collapse, slip from the nurse's hand and quickly fill with blood to its utmost capacity. Stephenson, of Abderdeen, has stated that "in a state of simple relaxation the uterine muscle is passive and offers no resistance to extension, provided there is an extending

force." One has then to deal with a uterus, the walls of which are practically paralyzed from exhaustion and over-stretching. Now we know, that at the time of the ballooning of the uterus, there was practically no vaginal hæmorrhage. This fact might lead one to conclude that the hæmorrhage came chiefly from the fundus, because, had it come from the lower part of the uterine wall, it would surely have poured into the vagina, or having become clotted, have arrested the hæmorrhage altogether by pressure. Let us assume, therefore, that the hæmorrhage did come from the fundus. Moreover, two facts are worth remembering in this connection, viz:—

First, the source of post partum hæmorrhage is chiefly from the site of placental attachment.

Second (again quoting Stephenson), the placental site is that portion of the uterus where the process of retraction is least advanced. It is safe to conclude, therefore, that the softest portion of the uterus in this case, was that part, to which the fibroid tumour was attached. Bearing these facts in mind, together with the knowledge that the uterine walls were to some extent supported by the blood clot, one might easily believe that this soft inert portion of the uterus, with its attached tumour, would naturally drop into the uterine cavity as soon as there was room for it, and as the space increased below, so likewise would the depression increase above, until it had descended too far to retreat, when its very presence would act as a stimulus to cause contraction of the uterine walls, after which it would be forced gradually downwards into the vagina. Moreover, intra-abdominal pressure may have assisted somewhat in the process.

With regard to the second theory, while I do not claim for it the whole cause of the inversion in this particular case, it may possibly have proved a factor in its causation. Consider a uterus filled with clotted blood and which is temporarily, at least, rendered inert, to the fundus of which, internally, is attached a fibroid tumour. Later this clotted mass becomes organized, contracts, and serum is liberated, which, being thinner than the organized mass, would naturally take the course of least resistance towards the cervix. Now, when one remembers that during the first three days after delivery, there was practically no vaginal discharge, the inference is, that there was obstruction of the cervix, due either to contraction of the uterus at that point or to impaction of the clot. Moreover, although active contraction was absent, retraction is ever present and continuous, and when once established, is permanent (Stephenson.) It is not an expulsive force, but may expel fluids free to move. It gathers the walls around and moulds them to the form of whatever is

within the uterus. The uterine wall would thus be kept in close contact with the organized clot, preventing the entrance of air. Therefore, as soon as the clot began to contract, a vacuum would tend to be formed in the upper portion of the uterus, into which the fibroid tumour, together with that inert portion of the fundus, (the site of placental attachment) would readily be drawn. Then as the clot descended, the fundus would be drawn down after it. Later the lower uterine wall, having regained in some measure its tonicity, might contract on the inverted fundus and assist in gradually forcing it down into the vagina.

Now, if one cannot find in either theory a satisfactory explanation of the cause of this inversion, perhaps, by considering both together, one might accept them as a reasonable solution of the problem.

With regard to the third question.

III. Could the inversion have been avoided?

Out of this question arises another, viz:—

Was the inversion entirely due to the post partum hæmorrhage, or would the accident have happened in any case? Notwithstanding the fact that for half an hour after delivery the uterus was well contracted, we know that after a contraction has subsided there follows the quiescent state of relaxation. During this state the blood pressure which refills vessels emptied by the contraction, might it itself be sufficient to enlarge the muscle walls to an alarming extent in an exhausted uterus. But would this expansion be sufficiently great, the predisposing cause being present, to cause inversion, or would the fibroid tumour attached to the placental site alone be sufficient to cause inversion? These are difficult questions to answer. On the other hand, if we assume that the post-partum hæmorrhage was really responsible for the accident, even then could the inversion have been avoided? And what methods might have been employed with this end in view?

First—The uterus might have been grasped with both hands, the blood rapidly expressed, and an attempt made to knead down the fundus, and by friction stimulate contraction.

Secondly—One hand might be introduced into the uterus and kept there until the external hand had regained its grasp on the fundus, when, by kneading and moulding between the hands, the cavity would gradually lessen, and the internal hand be slowly forced out; after which friction should be kept up for some time by the external hand. These methods were considered at the time, but the patient's condition was thought to be too critical to justify one in making the attempt. I cannot but feel, however, that had the control of the fundus at first established been maintained, the accident would not have occurred.

IV. Was the treatment employed the best possible under the circumstances? At the time of the post-partum hæmorrhage the foot of the bed was raised, subcutaneous and rectal salines were given, and the patient kept perfectly quiet with fairly large hypodermic injections of morphine, and moderate doses of strychnine administered. After twenty-four hours the morphia was discontinued and the stimulants increased, and I still think that this course was a wise one.

TREATMENT OF THE INVERSION.

As previously stated, manual reposition was unsuccessful. Repositors were not tried, but I do not think they would have proved a success, as the uterus could not be reinvaginated even when the cervical ring was incised, but only when the incision was carried up to the fundus.

With regard to the operation.—The anterior was chosen in preference to the posterior operation, because in it one has a much better view of the field of operation, hæmorrhage may be detected and controlled much more rapidly and the uterus can be sutured with less difficulty.

In conclusion, I may state that the treatment was successful, recovery without incident, and the patient has enjoyed the best of health since.

AUTO-TOXÆMIA OF PREGNANCY.

BY

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In bringing the subject of auto-toxæmia of pregnancy before the meeting, it is not my intention to take up your time in a scientific discussion of the question, for, as a matter of fact, it is a long distance to the last word, and it is far too vast a subject to consider fully in a paper of fifteen minutes, but rather I wish to consider it from the clinical side. Briefly: What is the condition due to? What conditions commonly met with are due to it? How may we recognize it? How may we treat it with success? Also, I should like to encourage discussion of a subject that is second to none in importance, in the practice of the general practitioner.

Formerly but few,—and I am sorry to say, from my personal observation, the vast majority of our profession to this day—paid a tithe of the necessary attention to the pregnant woman before her confinement. Possibly a large share of this want of attention is directly due to the carelessness or ignorance of the woman herself. The fact that the woman looks upon pregnancy as a natural condition, which should occur without undue trouble, as in the case of the mother of the past, is also responsible

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to a large degree for her attitude in the matter. The facts are that in civilized countries, and especially in cities, labour is really becoming more of the nature of a severe surgical operation, as dangerous as appendoectomy, if not more so. It has been stated that in large cities, the death rate is from 10 to 15 per cent., and in well conducted maternities, where there is the opportunity for the woman to receive the special surgical treatment required, it is one-half of one per cent.

What is the cause of auto-toxæmia? To put it briefly, the growing belief amongst those engaged in the scientific work on the subject, is that it might really be called "placental indigestion," faulty interchange at the placenta, causing the retention of poisonous matter in the mother's blood. It may possibly be that an unhealthy uterine mucosa at the time of conception is the primary cause. It is claimed by some, that many, if not all, women suffer with a slight degree of auto-toxæmia at the menstrual period, and we come across cases where the blinding headache, severe vomiting, and depression, are present every month and are looked upon as signs of auto-toxæmia.

What clinical conditions result from the auto-toxæmia? Whatever the true cause may be, we find certain and almost invariable results. Probably the best authority to-day is Dr. C. Edgar, who divides the subject into regional or, according to the organs attacked, as hepatic, renal, splenic, or cerebral; or, and as I believe, more usefully, from a clinical standpoint as regards duration and intensity into fulminant; acute; sub-acute; chronic; and benign.

The Fulminant type as expressed by acute yellow atrophy of the liver may cause death in twenty-four hours and some of the sudden deaths in the gravid.

Acute Type usually described as of three stages. The first stage which Edgar terms premonitory, consists of prostration, headache and vomiting, which may pass unnoticed into the second stage, where the nerve centres are involved. This may pass into the third stage, apathy, coma, and death, and often without convulsions having been present. Here the liver is usually, if not always, seriously affected, according to Ewing, and the type is markedly fatal, if not always so.

The Subacute Type.—This is the type we meet with most often and here death is not inevitable, and indeed, if the necessary care has been taken, need, I think, rarely occur. The chief clinical conditions are eclampsia, hyperemesis, ante and post-partum phlegmasia, pulmonary embolism, and increased liability to sepsis. The liver is usually damaged more or less, and the pregnancy kidney is frequently found. Klein asserts that the pregnancy kidney is only found when the thyroid does

not develop its usual hypertrophy. In this type, I believe, we can early detect the onset of this condition and by proper treatment carry the woman and her child to full term safely.

The Benign Type.—This includes the petty morbidity of pregnancy as evidences of slight toxæmia, pruritus, perverted tastes, etc., and the maternal organism is able to throw it off.

It is now certain that the fœtus is affected as much as the mother by the toxæmia, and with less resisting power it dies in many cases within a few hours or days of its birth, the mother recovering. It becomes difficult for the physician to explain why a healthy looking child should die with no cause apparent to the family.

What proportion of women suffer with toxæmia? Taking a healthy woman of 120 pounds, she should excrete say 472 grains of urea daily. The quantity of toxins excreted daily we have no method at present of calculating. We do not even know what they are, but clinically, we find that women excreting about 472 grains of urea daily, will excrete a normal amount of the toxins, and as the quantity of urea excreted is diminished, so is the quantity of toxins diminished, so that clinically all that is necessary to do is to examine the urea quantitively with the Doremus ureometer and the hypobromate of soda solution. The following table is taken from the last 200 cases in the Women's Hospital:—

Over	400 grains	35 cases	17.5 per cent.
Between	350-400 grains	26 cases	13 per cent.
Between	300-350 grains	37 cases	18.5 per cent.
Between	250-300 grains	29 cases	14.5 per cent.
Between	200-250 grains	36 cases	18 per cent.
Below	200 grains	20 cases	10 per cent.
Below	150 grains	13 cases	6.5 per cent.
Below	100 grains	4 cases	2 per cent.
		200	

This table shows that a much larger number of women suffer with toxæmia in varying degrees than one would suppose. In the 200 cases there were 17 per cent. of the cases with albumen varying from a trace which, on treatment, disappeared, and in other cases a grave quantity. We also find that in cases where there is considerable diminution of urea, say 100 to 150 grains for a prolonged period, the toxins seem to be stored up and suddenly may produce acute or subacute types, as eclampsia, and that without the kidney having shown any sign of being affected up to the time of the first convulsion. Therefore, the usual, and in most

cases the only examination of the urine which is made, is for albumen, which is not only deceptive of the condition present, but relying on it, our patient may become gravely, if not fatally, ill before we are aware of it, and if she should survive, she often does so with seriously damaged kidneys. So strongly do I feel this, that if a waiting patient in the hospital develops eclampsia, I hold the staff to blame, as they could have foreseen the probability of such a condition setting in and treating it prophylactically. It has only happened once to my knowledge in the hospital, and then it was due to carelessness. If eclampsia occur either the doctor or the patient, and usually the latter, is to blame from either carelessness or ignorance of the necessity of ante-partum examination and treatment.

We may meet with toxæmia at least as early as the third month. In hyperemesis gravidarum, I believe that we have in most cases an auto-toxæmia grafted on to an existing emesis, causing a simple condition to become grave.

How may we best treat auto-toxæmia? In slight diminution of urea before severe signs arise, I stop meat, and give chiefly milk diet with salines, following small doses of calomel, and find very often the condition greatly improved or it passes off altogether. I know of no other successful treatment for severe cases of diminution of urea, except that for threatened eclampsia, hot packs, saline purgatives, skim milk diet and iron and digitalis, and often rest in bed is required. The effect of such treatment will be seen in the following cases in three days time:

1	174 grains.	After treatment 325 grains
2	153 grains.	After treatment 209 grains
3	220 grains.	After treatment 483 grains
4	186 grains.	After treatment 316 grains
5	175 grains.	After treatment 260 grains
6	185 grains.	After treatment 342 grains
7	129 grains.	After treatment 310 grains
8	139 grains.	After treatment 352 grains
9	186 grains.	After treatment 341 grains
10	139 grains.	After treatment 349 grains

The hot packs were alternated with the saline purgatives and the urine tested every two or three days, until marked improvement occurred. Of course, clinically, we get in severe and advanced cases of deficiency of urea, the usual prodromata of convulsions in addition, severe headache, spots, sparks or flashes of light, sciatica, a most marked sign with many, and often a severe pain over the epigastrium. There may be general

anasarca also present, or only the feet and ankles affected. If you ask a patient who has been under treatment for deficient urea, how she feels, say after one week's treatment you will require no world-renowned authority to convince you of the correctness of your diagnosis or treatment, nor your patient of what you have done for her.

We also find that in cases in which there has been marked deficiency of urea, the orderly mechanism of labour is upset and the case is slow and often ended only by forceps. The after effects of this auto-toxæmia are more common than is believed. If the liver is examined, there is diminished liver dulness; the patient is pale or even jaundiced, stools are pale or even putty-coloured, and diarrhœa is frequently present. If the conditions are not as severe as here pictured, the patient, I find, is a long time in recovering her usual health.

Another important point is that, if the patient becomes pregnant within, say a year or so, the next pregnancy shows increasing signs of auto-toxæmia, and several years should elapse before pregnancy can safely be undertaken.

Such cases, if they become pregnant, should be warned by their physician of the necessity of being properly taken care of during the term of pregnancy, and frequent analyses of urine made. If the case is rapidly becoming worse and the pregnancy kidney developed, I think that emptying the uterus is the safest and best course.

In conclusion, I wish to specially emphasize the fact, that if eclampsia or other toxæmia condition occur in a case under our care, when the woman has been willing to do whatever we advise, the responsibility rests upon us, and is a reflection on either our knowledge or our care of such a patient, for, in the vast majority of cases, preventive treatment is curative.

I think that we meet with deficiency oftener in cities than it is met with in the country, although it certainly does occur in the country to my knowledge.

CÆSAREAN SECTION.

BY

R. E. WEBSTER, M.D., Ottawa.

Gynæcological Surgeon to the County of Carleton General Hospital.

Cæsarean section is a classical operation. It was performed by the ancient Greeks after the death of the mother. Among the Romans it was decreed that no pregnant woman should be buried until the child had been delivered by abdominal section, and the name Cæsar was given to

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all children born in this way. Jacques Nufu, in 1518, a shoemaker, I believe, by trade, was the first man to perform the operation on a living woman, the patient being his own wife. Rousset, in 1581, wrote a treatise on the subject. Libias, in 1769, was the first to close the uterus by suture. Polini, of Kentucky, in 1828, was the first to carry out this method in America, using silver wire to close the uterine wound. Surgical technique of the present day has robbed the operation of most of its terrors, and instead of a mortality rate of 60 to 80 per cent., as given by Schroeder, in 1874, we have now almost eliminated death in these cases, when done at a selected time and by rapid and competent operators.

INDICATIONS.

The indications for Cæsarean section are absolute and relative. They are absolute when delivery by the natural method is impossible. They are relative when the choice lies between this and other procedures, such as induction of premature labour, turning, forceps, symphysiotomy, or craniotomy. Indications are absolute with the living child in a flat pelvis of a conjugate of 6.5 centimetres or less, or in a generally contracted pelvis of 7 centimetres or less—or in case the child is dead with a pelvis of 5 centimetres or less. Indications are relative with a conjugate of 7.5 centimetres with a living child. When the conjugate is less than 7 centimetres, symphysiotomy is a more hazardous operation. Turning should never be attempted with a conjugate less than 8.5 to 9.5 centimetres. As to the time at which the operation should be performed, I believe it is better to anticipate labour by a week, in order to make proper preparation for the case, to select proper assistants, and properly prepare the patient if possible. Should labour set in, operation should be performed at once, as each hour of labour increases the risk of rupture or infection. Results are better in cases of early operation. Two operations are performed: (a) The Conservative Sanger-Cæsarean; (b) The Radical Porro-Cæsarean.

After the usual preparation for laporotomy, the patient is anæsthetized and the cervix is dilated up to two fingers; vagina is washed out and filled with sterile gauze, which is removed after the operation, and a sterile pad placed over the vulva. A six-inch incision is made in the middle line over the most prominent part of abdomen, beginning above the umbilicus. Sterile pads are packed around the uterus which is held up by an assistant making pressure at the side. The placenta is felt for and the incision in the uterus is made to avoid it if possible. The child is quickly seized by the legs and withdrawn, the cord being clamped and cut. If bleeding from uterus is severe an assistant compresses the uterine arteries. The placenta is rapidly removed, the uterine cavity sponged

out, and sutures rapidly placed in the uterus. Sutures always control the bleeding. Chromic gut sutures penetrating down to the muscosa are tied separately. A few superficial stitches and a continuous peritoneal suture closes the uterus. The abdomen is flushed out and closed by the usual three layers of sutures. If the radical operation is to be performed, instead of saturing the uterus a few clamps are applied to the cut edges, and the usual operation for hysterectomy is done. The mortality rate is very small in ordinary cases. I have now performed this operation fifteen times without a death. These cases have been done at varying times before and after labour had set in, and sometimes after ineffectual attempts have been made at delivery. I have selected a few case reports as indicating different conditions met with.

Case 1.—Fibroid tumour and hæmorrhage complicating the pregnancy.
Case 2.—A generally contracted pelvis with labour just beginning.
Case 3.—A generally contracted pelvis of the male type operated on after attempts had been made to deliver with forceps.
Case 4.—Cæsarean section after rupture of abdominal wall and escape of abdominal contents.

REPORTS OF CASES.

Case 1.—Mrs. W., aged 30 years, last regular menstruation five months ago, has since had two hæmorrhages, last one a few days ago. One year ago she consulted me for a swelling in the abdomen, and menorrhagia. On examination a diagnosis of uterine fibro-myoma was made and hysterectomy advised. The patient put off operation and has now returned believing herself pregnant. Patient gives a history of a sudden cessation of menstruation five months ago followed by the usual signs of pregnancy. At three months she had a slight hæmorrhage which was controlled by rest in bed, and morphia administered hypodermically. A few days ago she had rather an alarming hæmorrhage and was sent into the hospital for operation. On examination the large fibroid was found filling the pelvis, and an enlarged thin walled uterus above containing a fœtus. No fœtal heart sounds could be made out and patient maintained that no life had been felt for two weeks. Porro-Cæsarean operation and the situation explained to her with reference to future pregnancy. growth completely filling the pelvis, with the fœtal sac high up above it. The placenta encroached on the fibroid area from which some stripping had occurred explaining the hæmorrhage. The patient made an uninterrupted recovery, leaving the hospital in three weeks.

Case 2.—Mrs. C., aged 25, primipara. Sent in from maternity hospital at onset of labour. A generally contracted pelvis. Conjugate 6.5

centimetres, rickety English immigrant. Patient was prepared for operation and the situation explained to her with reference to future pregnancy.

At her request a Cæsarean operation was done and tubes removed as she did not wish to take the risk of future pregnancy. The ovaries were not removed. The child was a vigorous nine pound child, and mother and child left hospital at the end of three weeks.

Case 3.—Mrs. E. B., aged 40 years, primipara; admitted to hospital after being 36 hours in labour. Ineffectual attempts had been made to deliver with forceps. On examination, the vagina showed signs of severe bruising. Liquor amnii and blood coming away. Head firm, high up, and not engaged. Conjugate estimated at 6.5 centimetres. Pelvis rigid. Coccyx firm. After a rapid preparation of patient, Cæsarean section was performed. The uterus did not contract well, so a hot sponge was left in to be removed next morning per vaginam. On examination of interior of the uterus it was interesting to note the result of the severe efforts made to deliver with forceps. At the level of the inner os or slightly above it the muscular and mucosal tissue had been completely severed by the pressure of the head on the pelvic bones and cervical portion was apparently held only by the peritoneum.

Case 4.—Is one of unusual interest. Mrs. E. C., aged 42; multipara. Two labours previously, both very severe forceps cases. Her family physician was called hurriedly on the morning of November 5th. On arrival at the house he found her suffering from considerable shock with a large amount of intestine protruding from her side. The patient was vomiting and straining, and more intestine was coming out at every effort; a large hypodermic of morphia was at once administered, as the doctor expressed it, "to prevent her forcing the liver out, as she had everything else except a pregnant uterus outside." The intestines were covered with hot dressings, a binder applied, and the patient put on a train for the hospital. Owing to railway delays she arrived at hospital thirteen hours afterwards.

She gave a history of having a large inguinal hernia, which had been operated on unsuccessfully two years before at St. Bartholomew's Hospital, London, on which she had since worn a truss. As pregnancy advanced she had discarded the truss, substituting a binder therefor. On the morning of the accident she had been doing her usual work when pains commenced, and her expected labour began. She had a very severe cold, coughing and sneezing a good deal. She was coughing and vomiting when she suddenly felt something give way and became very faint. She knew her abdomen had ruptured as the bowels fell out, so she got

into bed, covered the intestines with an old night shirt, and sent for the doctor. The woman reached the hospital in a critical condition. Temperature sub-normal, pulse 128, very thready, face anxious, extremities cold, showing considerable shock. She was immediately put under an anæsthetic. On the binder and dressing being removed, she presented an appalling sight. A full term pregnant uterus, a ruptured abdominal wall, a huge mass of black, lymph-covered, intestine, larger than a common pail, which covered the left lower abdomen and thigh, hanging down to the table, made a picture not pleasant to look at. The intestine was flushed off with hot water, and covered with hot towels. The abdomen was then rapidly opened in the middle line and Cæsarean section made. A child was delivered alive, and the incision closed as rapidly as possible after sponging out the abdomen. Thanks to good assistance this was finished in fourteen minutes, and then the inguinal ring was incised, the intestines separated, cleaned and returned to the abdominal cavity, which was flushed out and left full of hot saline. The inguinal ring was closed with kangaroo tendon, and the patient returned to bed. She was rather badly collapsed, but picked up rapidly after an intravenous injection of hot normal salt solution. She made an uneventful recovery, except for a broncho-pneunomia, which she developed on the fifth day. However, she left the hospital with her baby at the end of the fifth week.

CONCLUSIONS.

1. Cæsarean section is a much less dangerous procedure than we considered it a few years ago.
2. Rapid operation is a great factor in these cases.
3. Early operation, if possible, before exhaustion of patient or rupture of uterus.
4. Advisability of careful examination of all obstetrical cases by the family physician, especially with cases where there is a possible rickety history.
5. Cæsarean section is a much safer procedure for mother and child than a high forceps operation.

THE

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THE TUBERCULOSIS EXHIBITION AT WASHINGTON.

Despite certain adverse criticisms on the part of some of the delegates to the meeting just held in Washington, with regard to the success or otherwise of the meetings held there, there is, I think, but little doubt in the minds of the vast majority of the individuals who had the good fortune to be present, that such a conference must result in the greatest possible good to the world at large, and particularly to Canada and the United States.

With regard to the deliberations of the various sections, and the papers presented, there is naturally always a possibility that the most important facts will not be appreciated at the time of their presentation. With regard, however, to the teaching of the multitude of facts and figures presented to the eye by means of charts, diagrams, photographs, models, etc., in the exhibition, but one statement, I think, is generally made; that is to say, that the impression received was, in the majority of cases, most illuminating and stimulating to one who has not spent a special amount of time during the last three years in noting the progress made throughout the world in the anti-tuberculosis campaign.

The evidence of effective work carried on by voluntary societies, by large and small municipalities, and by governments, was little short of marvelous. Some forty odd societies, representing work carried on in all parts of North and South America, and throughout almost every

country in Europe, presented exhibits showing the work which had been carried on by them. These societies were entered into competition with one another to show who had been successful among voluntary societies in carrying out the most successful campaign against the White Plague. Thus, Uruguay came in competition against Boston. Small societies in Providence or British Columbia, attempted to show that their work had been as effective as that carried on by New York State, or the committee upon tuberculosis of the Charity Organization Society of New York. Again, Sweden and Ireland, with their short lived campaign, showed how favourably their work had compared with the work carried on in other parts of the world by young and old societies, by societies spending fifty and sixty thousand dollars a year, and societies spending little more than a thousand a year.

The judges in charge of this competition, of whom the writer was one, had thus an extremely difficult task before them. That the circumstances under which societies in Europe and America were working was appreciated as being very different, was shown by the decision on the part of the judges to divide the first two prizes, making the Women's Health Association of Ireland, and the New York Charity Organization Society divide the honours of the first place, and each to get $500.00 of the $1000.00 prize money. The second place was divided between the Swedish Association for the Prevention of Tuberculosis, and the Boston Association for the Relief and Control of Tuberculosis. In the same way Hungary demonstrated effective work, which was considered equal with that of smaller societies like those in Cleveland and Providence, each of these receiving silver medals. Other societies doing excellent work, and honourably mentioned by this committee, were the District Nurses of Philadelphia and Baltimore, and the Maryland Association for the Relief of Tuberculosis.

Although this one aspect of the Exhibition proved an almost inexhaustible source of interest and information, this part of the work, however, was in reality but a small portion of the exhibit. Thus, architects from different countries, in both Europe and America, submitted plans for hospitals, dispensaries and sanatoriums. Germany presented a most interesting exhibit of excellent plans and several well executed models showing a new method of constructing hospitals in tiers of gradually diminishing size, so that the sun porches of one story should not interfere with the sunlight of the story beneath. A similar plan will probably be made use of in the construction of the new Henry Phipps Institute in Philadelphia, the preliminary architect's plans of which were also exhibited along with a very fine model.

One aspect of especial interest, possibly on account of its novelty in this part of the country, was the interest which had been shown in many places on the part of the labour unions and other trade societies. In Germany, of course, the method of compulsory insurance of the workmen has tended to develop this interest to a marked degree, it being a matter of personal interest to both employer and employee to see that the lives of the individual workman be prolonged as much as possible. The result has been, throughout Germany, a most complete system of hospitals and sanatoriums for the treatment of the various forms of tuberculosis. But not only in Germany has this interest on the part of the workingmen been put to practical use.

The United Printers' Union maintains a well organized Sanatorium at Colorado Springs, for the treatment of the members of that body. Although no such complete method has been adopted by other trade societies, in a great many places the leagues and associations are receiving very substantial help from the labouring classes through their assistance. In Hartford, Conn., a most unique method of interesting both the labouring man and his employer, has been made use of, and had been found to be of definite value. The Hartford Working Mens' Society for the Relief of Tuberculosis, is the name now adopted by this society, which commenced as The Working Mens' Club. This society is composed of a large number of units, each unit representing the staff of some manufacturing concern in Hartford. The society has a well maintained hospital for the isolation and treatment of tuberculosis, the expenses of which are paid for by the various units in proportion to their size. The funds supplied by these units or individuals houses are procured jointly from the men and from the employers, the employers being willing in every case to duplicate the subscription taken up by the men in the works. The result is, that a condition of affairs more or less approaching that in Germany, has been arrived at. The men and the employer both have financial interest in the welfare and health of the individual worker. Here as elsewhere has been found that the prevention is better than the cure, and marked improvement in sanitation, lighting and ventilation, disposal of sputum and so on, has been noted in many of the factories, for if a factory is not itself making demands upon the hospital they are only to a small extent liable for contribution to its support.

Mr. Hatch, of Mass., in an address to the lay workers in connection with the tuberculosis societies draws attention to the fact, that it is only by a multiplication of the efforts against the disease that it can be successfully handled.

That the various social and economic organizations already existing are able to materially assist in the campaign is shown by the excellent work demonstrated by the societies already mentioned, by classes held in connection with various charities and clubs, and by the numerous advancements made as the result of earnest endeavour on the part of those in legislative power, although these smaller societies are necessary for the complete eradication of the disease, their work is only of value if under the careful supervision of experienced workers. That this supervision should be controlled by the various governments was undoubtedly the suggestion of the majority of the exhibits at the conference. Evidence of excellent work already accomplished, was also supplied by many State and Municipal Boards of health. Possibly the most complete in this way is that in New York City. Here the problem before the authorities is probably the most difficult of that presented anywhere in the world, for nowhere else does congestion exist to the same extent.

Despite the special difficulties under which the New York authorities are working, the result of their campaign has been most gratifying to those in charge, amongst whom the greatest credit is due to Dr. Hermann S. Biggs and his staff. During the past eighteen months they have been successful in passing laws making isolation for advanced cases of tuberculosis, which are unable through poverty or ignorance, to render themselves harmless to their friends compulsory. It is needless to say that there is an adequate provision made for the housing of these cases. At the same time the apparent harshness of this rule, which precludes any return of the individual, during life, to his old haunts, is largely mitigated by the fact that in most of the cases, the helpless and poverty stricken wretches are only too willing to accept such relief. In no better manner can the gradual progress in this direction be impressed than by means of the charts, diagrams, and photographs, showing the particular working of the methods of both the health department itself and the Tuberculosis Committee of the New York Charity Organization Society.

Numerous occasional, though valuable methods of dealing with the disease are, in an exhibition of this kind, brought prominently before the observer's attention. Among these more novel methods of treatment, is that initiated by Dr. Joseph Pratt, of Boston, during the last two or three years. The increase in the earning capacity of the members of this class, together with the extremely satisfactory rate of improvements and the large proportion of cures and arrests of the disease, makes a very interesting demonstration. We are indeed fortunate in

our prospect of having Dr. Pratt with us at the time of our own exhibition, along with the same exhibit shown by him at Washington.

Naturally the findings of the majority of observers with regard to the importance of infection of the children with bovine tuberculosis, through the medium of milk from tuberculosis cattle, has given a special impetus to the subject of pasteurization. As a result, the excellent exhibit of Mr. Nathan Straus, of New York, demonstrated as it was by expert attendants, attracted more interest than it would probably have done twelve months before.

The dominant note of the exhibition, as of the Congress, was the eradication of the disease rather than the treatment. Among factors of value in bringing about this condition, the educational compaign seems to be in popular favour. Among the methods in the educational campaign, probably the most important in the long run, and the one which has produced the greatest results has been the exhibition. Large exhibitions have been held in practically all the larger cities upon both this continent and in Europe, and travelling exhibits have scoured the country, even down to the smallest hamlets. Probably the most extreme adaptation of this form of education, has been that made use of in Ireland, where by means of a large van similar to the Western Prairie Schooner, and drawn by several horses, the exhibition has gone from one village to another, photographs and diagrams being displayed upon the outside and inside of the canvas covering, the lecturer making his address from the back steps of the cart.

If the above notes have been successful in stimulating interest and giving information to those who have asked the question, "what is the purpose of a tuberculosis exhibition?" they will have performed everything for which they were intended.

A CAMPAIGN AGAINST TUBERCULOSIS.

When a city is growing rapidly, it is a reasonable expectation that permanent improvements be built upon a scale commensurate with the probable subsequent development of the city. To do less is not economy, but waste. So is it with this question.

The activity on all sides manifested in questions relating to tuberculosis, the recent Congress, the coming exhibition, the zeal of the league, Colonel Burland's splendid gift, all constitute a point of departure upon better achievement than we have hitherto attained. We must be careful that the steps we now take are the best in view of the much greater means we may have at our disposal in a few years. We must keep in view that ten years hence we may be conducting a much bigger fight than we are

at present. How should our present resources be expended to make them available to the highest extent hereafter, as part of what will then be a more extensive system? The first question that arises is: "Will private benevolence be required to do the work of stamping out tuberculosis? Or will the Government, federal or provincial or municipal, or all three together, undertake what is really their business?" Supine as our governments have been in this regard, we may reasonably expect that they will awake or will be awakened to their responsibilities. They alone can conduct the fight on the proper scale. Already an indication of movement on the part of the Quebec Government is the statement of the Premier, of his desire to appoint an advisory Royal Commission on the subject. In the meantime it behoves us now to use our funds so that any buildings we erect or funds we establish may be available to become part of any wider, national or other scheme that may be hereafter devised.

A city such as this should have a large organization, which should consist of a dispensary, which will govern the whole; it will have connected with it, sanitariums for curable cases, and a hospital for incurable cases. The central dispensary, ministered to by all the hospital "outdoors," will be the head office to which all cases will be reported; cases will be examined, classified, sent to sanitariums to be cured, or to incurable hospitals to die; it will also keep the individual history of houses where cases arise, and will attend to the disinfection of houses infected, and to the education of those in contact with the sick, as well as to the education of those cases which are not treated in any institution. With the growth of the community, other dispensaries would arise, which would remain outlying agents for the main dispensary, working with it. No small part of the work of such a dispensary in Montreal would be the education of the children in schools, and the constant encouragement of opposition to spitting, which is "the national vice of the Province of Quebec." Of all these functions, perhaps the greatest is that of education; this can be done only by beginning early in life, and never ceasing to teach people that neglected colds and such ailments may mean tuberculosis; that the existence of the disease can be determined only by careful examination; that such examination can be obtained, and that without it, a physician's assurance, though well meant, is injudicious and misleading. People must be trained to consider tuberculosis as a probability, and to face the question, each in his own case. Only in this way can cases be reached at an early stage in the disease; and as the wider campaign is carried on, the scope of the sanitariums for curable cases is likely to be enlarged, and a time may come when the advanced cases requiring hospital treatment may be so well instructed that they

could be dealt with in their homes without being a menace to others. This last, we fear, will not be in our day, but, at least, we may be excused if we hitch our humble waggon to a star, because we must think of every step undertaken hereafter in Montreal, as part of a great and widely-acting system.

ORGANIZATION IN THE WEST.

The organization of the medical profession in Canada is progressing surely. Manitoba is the latest province to form a Medical Association which will affiliate ultimately with the Canadian Medical Association. The slow labour of those who founded the large body so widely and so well, is justified by the result, and we may hope in time to see in all the provinces strong associations working in harmony and bound together through the Canadian Medical Association.

At the organizing meeting, held in Winnipeg, October 8th, the profession was widely represented. Amongst the names of those present we find:—Drs. W. Rogers, W. Chesnut, R. G. Montgomery, H. A. Gordon, C. E. Coke, T. Beath, C. A. Mackenzie, Egerton L. Pope, W. A. Gardner, R. Renny Swan, W. K. C. Fisher, Walter L. Watt, Chas. A. Ritchie, R. S. McMunn, J. R. McRae, Geo. Hughes, R. Thomson, P. H. Miller, Harry J. Watson, W. R. Nichols, Fred. J. Hart, Hugh Mackay, W. Webster, J. McKenty, F. D. McKenty, H. E. Hicks, Geo. Clingan, Herbert P. H. Galloway, A. D. Carseallen, D. G. Ross, Raymond Brown, J. H. Leeming, J. A. MacArthur, F. S. Keele, J. R. Jones, R. J. Blanchard, H. J. McDermid, N. J. Maclean, James Patterson, H. H. Chown, S. W. Prowse, G. Beel, E. S. Popham, W. W. Moody, P. C. Macarthur, W. Harog Smith, J. R. Gunn, J. R. Davidson, Thos. Turnbull, F. C. A. Walton, John H. R. Bond, H. C. Norquay, J. W. Good, John Macdonell, Fred. A. Young, John P. Hooder, Jasper Halpenny, R. W. Kenny, D. S. Mackay, Robt. T. Rorke, S. C. Peterson, O. C. Meindle, W. A. Cluff, V. E. Latimer, E. Richardson, C. G. McGreer, E. A. Jones, E. W. Montgomery, C. C. McGlashan, C. W. Clark, Chas. E. Sugden, H. J. Hassard, Robert Mackenzie, C. T. Sharpe, J. O. Todd, T. R. Rochon, A. E. Walkey, Bertram Neild, S. J. Burridge, J. E. Coulter, J. S. Kennedy, R. M. Cumberland, Chas. Nanton, Geo. Henderson, Oscar C. Dorman, John A. Macdonald, P. Lachance, J. R. A. Lorimer, John S. Macheson, H. Jankes, G. E. Swallow, A. W. Allum, N. K. McIvor, J. A. Hamilton, R. Goodwin, J. A. McGuire, Adam Clarke, J. T. Whyte, C. H. Vrooman.

The following officers were elected:—President, Dr. J. R. Jones, Winnipeg; Vice-President, Dr. J. A. McDonald, Brandon; Second Vice-President, Dr. J. R. McRae, Neepawa; Secretary, Dr. Jasper Hal-

penny, Winnipeg; Treasurer, Dr. R. W. Kenny, Winnipeg; Executive Committee, Dr. Hicks, Griswold; Dr. Ross, Selkirk; Dr. Keele, Portage la Prairie; Dr. Speechley, Crystal City; Dr. Harrington, Dauphin; Auditors, Dr. Blanchard and Dr. Moddy, Winnipeg.

COLONEL BURLAND'S GIFT.

We welcome the announcement that has been made in the press that Colonel Jeffrey Burland has notified the League for the Prevention of Tuberculosis that he will give $50,000 for the building and equipment of a new dispensary in connection with the work of the League. Colonel Burland has already made the purchase of a building and land in Belmont Park. A condition is attached to the gift that $50,000 must be forthcoming from other sources for the endowment of the establishment, and it may be confidently predicted that this condition will be fulfilled. This generous donation is intended as a memorial of the giver's father and mother, and no nobler monument could be reared than one such as this; we congratulate alike the donor and the community.

Reviews and Notices of Books.

A Text-Book of Human Physiology, Theoretical and Practical, by George V. N. Dearborn, A.M., Ph.D., M.D., Professor of Physiology in the Medical and Dental Schools of Tufts College, Boston; Professor of the Relations of Body and Mind in the Sargent School for Physical Education, Cambridge. Lea and Febiger, Philadelphia and New York.

This book of 550 pages with numerous illustrations, is written in a pleasing and interesting style, and is well got up. A special feature is a chapter on "Mental Function," which discusses consciousness, feeling, willing, knowing, etc., from a physiological and psychological point of view.

It is a good book as far as it goes, but it does not go far enough. Such important subjects as nitrogenous metabolism, the functions of the liver, and voice production are practically omitted, for, while a page or two is devoted to each, the information given is not sufficient to be of any use to medical students.

We do not like the order in which the chapters are arranged. We think it a serious error of judgment to put the chapter on the central nervous system, which requires an advanced knowledge of anatomy, almost at the beginning. It is not even preceded by an account of muscle physiology, as is the case in Howell's text-book. Some of the most funda-

mental facts of muscle physiology are not mentioned in the body of the work at all, but are left to be gathered by the student from the practical exercises in the appendix.

This book is not, in our opinion, adapted to the needs of medical students, but might serve the needs of dental students fairly well. It is still better suited for students of psychology or for high school teachers or scholars. To the latter, the omission of important subjects here and there would not necessarily be a serious matter. W. S. M.

PATHOLOGICAL TECHNIQUE: A practical memorial for workers in Pathological Histology and Bacteriology, including directions for the performance of autopsies and for clinical diagnosis by laboratory methods by F. B. MALLORY, A.M., M.D., Associate Professor of Pathology, Harvard University, and J. H. WRIGHT, A.M., M.D., S.D., Director of the Pathological Laboratory of the Massachusetts General Hospital, Assistant Professor of Pathology, Harvard University. Fourth Edition, revised and enlarged; pp. 480, with 152 illustrations. Philadelphia and London: W. B. Saunders Co., 1908. Price $3.00.

There is no better, more useful work of reference for the workers in the pathological and clinical laboratory than this, and each successive edition makes it better, more useful and more essential. Thus, the present edition has been brought up to date by the inclusion of the latest methods for differential cultures of the typhoid bacillus. It details Best's admirable method for staining glycogen, von Kossa's method for demonstrating lime salts, Klotz's modification of the same being duly noted, Sir A. E. Wright's method of staining bacterial vaccines, not to mention the very valuable methods devised by the authors: Mallory's for fibroglia, myoglia and neuroglia fibrils, and Wright's for the differential staining of blood platelets.

ANATOMY, DESCRIPTIVE, AND SURGICAL, by HENRY GRAY, F.R.S. 17th Edition. Revised and Re-edited with Additions, by JOHN CHALMERS DACOSTA, M.D., and ED. ANTHONY SPITZKA, M.D., Professor of Anatomy, Jefferson Medical College, Philadelphia. Illustrated by 1,149 engravings. Lea and Febiger, Philadelphia and New York, 1908.

"Gray," as a text-book, has always been a favourite with students. When Gray's Anatomy first appeared, it was a very distinct advance on the older text-books, especially in the way of illustrations. But of the original Gray, not a great deal survives. This is the seventeenth edition,

and each edition, especially the American ones, has been re-edited, added to, and altered, so that now we have a book of more than sixteen hundred pages, and large ones too. The fact that a new edition has been called for within two years, speaks loudly for the popularity of the work amongst teachers and students; but when is the increased matter in text-books on anatomy to cease? Yearly, they become more elaborate and more attention is given to detail. The poor student's brains do not increase *pari passu* with the amount of knowledge required of him, and what is to be the end—God only knows. These books will, perhaps, in the future be used as books of reference, and some concise, well written manual, deprived of verbiage and useless illustrations, will appear to relieve the burden of the overtaxed student. This new edition, as might have been surmised from the fact that Dr. Ed. Spitzka's name appears on the title page, has had the section on the nervous system largely re-written and new illustrations added. The edition is fully up to date and will continue to be considered as one of the best text-books in use in medical schools, though it has many rivals. We should like to ask why the names of the English editors, which appeared in the last edition should be omitted in this?

RATIONAL AND EFFECTIVE TREATMENT OF HIP DISEASE, by P. BRUCE BENNIE, M.A., M.D., Melbourne, Australia. 108 pages. London: Bailliere, Tindall and Cox. Canadian Agents, Carveth & Co., Toronto, 1907.

This little book describes the author's results in the treatment of tubercular disease of the hip by means of the Thomas' splint. The chapters on the description and application of the splint are excellent and clearly expressed. The author gives the methods of general and local treatment by which he has had the best results, and in this lies the value of the publication. The short pathological description and the discussion of other methods are quite elementary. The teaching is practically that of Thomas himself. A series of cases illustrating different types of the condition are cited in concluding a very practical publication.

ESSENTIALS OF REFRACTION, by THOMAS G. ATKINSON, M.D., Chicago. G. P. Englehard & Company, 1907.

According to the preface of this small book, it has been written expressly for the examining optician or, as the class is denominated in the United States, the refractionist. It deals in a superficial manner with the refraction and anatomy of the eye and is certainly not to be recommended to the student of medicine. The book is the production of a doctor of medicine and associate professor of physiology in the

American College of Medicine and Surgery, in Chicago. It is difficult to see how any graduate of medicine could bring himself to write the fifteenth chapter of this book, in which the author presumes to impart to the refractionist the differential diagnosis between various eye diseases and in certain cases advises the treatment to be followed. J. W. S.

DISEASES OF INFANCY AND CHILDHOOD: THEIR DIETETIC, HYGIENIC, AND MEDICAL TREATMENT.—A text-book designed for Practitioners and Students in Medicine. By LOUIS FISCHER, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals, of New York City; former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital, etc., etc.; Fellow of the New York Academy of Medicine. With 303 Text Illustrations, several in colours, and twenty-seven full-page half-tone and colour plates. 979 Royal octavo pages. Extra cloth, $6.50 net; half-morocco, $8.00 net. Sold only by subscription. F. A. Davis Company, publishers, 1914-16 Cherry Street, Philadelphia, Pa.

Dr. Fischer's book has become such a favourite with the student as well as the general practitioner, that a second edition has been called for within six months. While there is evidence of careful revision, the general plan of the work has been maintained. It is essentially clinical in character, rather than didactic, and much stress is laid upon diagnosis and treatment. The author has decided views of his own as regards treatment, and states them frankly and fearlessly; the reader feels that in every chapter he is coming into personal contact with a clinician of wide experience and sound judgment. Few books, nowadays, have so little padding; few are so clear and concise. The case reports are numerous and well chosen; the illustrations are mostly original and add greatly to the value of the book. J. C. C.

PULSATING EXOPHTHALMOS, by GEORGE E. DE SCHWEINITZ, M.D., Professor of Ophthalmology in the University of Pennsylvania, and THOMAS B. HOLLOWAY, M.D., Instructor in Ophthalmology in the University of Pennsylvania. 6″ x 9″, 124 pages. Cloth, $2.00 net. W. B. Saunders and Co. Canadian Agents, J. A. Carveth & Co., Limited, Toronto.

The object of this essay, as stated in the preface, is to compare the therapeutic measures, surgical and otherwise, which have been employed in the treatment of the cases which are analyzed, and to endeavour to determine from these analyses those surgical procedures which seem likely to prove of the greatest advantage in the control of the symptoms of pulsating exophthalmos. In addition to the review of the etiology, symptomatology, and pathogenesis of this affection, particular considera-

tion has been accorded to the orbital operations which have been performed for its relief, and to which Professor Sattler's comparatively recent paper on this subject has called renewed attention. As one would expect, the authors have done their work in a very thorough manner, and the profession is under obligation to them for a very comprehensive and up-to-date monograph on this interesting group of cases.

W. G. M. B.

A Text-book of Surgical Anatomy, by William Francis Campbell, M.D., Brooklyn, N.Y. W. B. Saunders & Co., Philadelphia and London. Canadian Agents, J. A. Carveth & Co., Toronto. 314 illustrations.

This is an excellent book. The author has presented the cold facts of anatomy in such a way as to make both interesting and profitable reading. The clinical value of anatomical facts are set forth in a lucid and thoroughly practical manner. The work is sure to meet with general favour: by the student and practitioner in mastering the essentials of practical anatomy, and especially by the active surgeon as a work of reference, in carrying out his routine daily work. The volume is of convenient size, well printed on good paper and liberally illustrated. The arrangement of the book is excellent for reference. The various regions of the body are considered and presented in six parts, each region or part being again subdivided into two or more chapters, according to the importance of the region under consideration. For example, Part I deals with the head and neck under ten chapters; Part II, the thorax, two chapters; Part III, the upper extremity, seven chapters, and so on to the end of the book. The author is entitled to much credit for the clear and interesting way in which he has set forth the clinical values of what are usually considered but dry and uninteresting anatomical facts. The book may well be considered as a companion volume to that most excellent work on operative surgery by Bickham, published also by W. B. Saunders and Company.

F. R. E.

Medical News.

ROYAL VICTORIA HOSPITAL.

Monthly report for September, 1908: Patients discharged, 327; patients admitted, 359; patients died, 17. Medical, 112; surgical, 148; ophthalmological, 22; gynæcological, 45; laryngological, 32. Out-Door Department:—Medical, 1,038; surgical, 626; eye and ear, 340; diseases of women, 200; nose and throat, 498; total, 2,702. Number of ambulance calls, 117.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

ALEX. MORRISON. "On Thoracostomy in Heart Disease." *The Lancet*, July 4th, 1908.

To the internist of conservative tendencies, a title such as the above is apt to suggest no more than the vagary of some chance surgical mind, rather possessed by mere *rabies operandi* than possessing even that modicum of knowledge which is popularly supposed to enable its owner to be a surgeon. And yet, the two chief men who have advised operation in certain forms of cardiac lesion are both internists, of recognized ability and teachers.

Brauer, in 1903, then of Heidelberg, now of Marburg, recommended and had carried out an operation consisting in the removal of a certain area of the ribs over the heart, and designed for the relief of intrinsic pericardial and especially costo-pericardial adhesions, which, in his opinion, interfered so seriously with the free motion of the heart as to cause serious symptoms. A number of such operations have since been performed, and with very encouraging results. In the article which is the subject of this review, Morison lays down the indications for a similar procedure in cases of heart disease dependent on an entirely different pathology. He says, that for some years, there had "been a growing conviction in my mind that it was less the tethering of the heart than its bulk and force of systole which were the determining factors in the situation; and that operation to afford room adequate for the free action of the enlarged organ was the primary consideration, whether the organ itself were tethered or not. One has so often observed post mortem a large muscular heart associated usually with aortic valvular disease and without extraneous adhesion, succumb to the mechanical difficulty, while possessing apparently an amount of wholesome muscle which one would, a priori, have imagined should have contended with the obstacle in the circulation for a much longer period, had it not been exhausted by some other cause." He takes the abnormal size of the organ, together with cardiac pain, as the chief indications, and he relates the history of a patient suffering from double aortic valvular disease, associated with a much enlarged heart and frequent attacks of cardiac pain, in whom such an operation, which he entitles 'Thoracostomy,' gave great relief.

His argument is somewhat as follows: "The normal beat of the 'apex' occurs at an intercostal space, and is expended on soft structures.

When, however, the heart is increased in size and the force of the systole is also in excess of what is normal to the individual, the cardiac apex thrusts, not against a yielding interspace, but against interspace and rib, one or more, according to the size of the systolic ventricle. The finger or hand placed over the heart then feels the concussion of the stroke, both against rib or ribs and interspace or interspaces. Again, notwithstanding recent controversies as to the role of muscle and nerve in cardiac action, it is admitted that direct muscular stimulation of the eviscerated heart induces contraction, and that in the heart *in situ* nervous impulses have a powerful effect on the organ by way of inhibition, augmentation, and acceleration.

"Given, therefore, a large heart powerfully pulsating against hard and resistant structures, what more natural than that the striking and indirectly struck organ should from time to time develop a condition of excitation or erythism in excess of what is normal to it, and that such erythism should be associated with increased systolic pressure augmented by mental causes due to subjective discomfort in various degree, from uneasiness to pain. Such pain, moreover, as has long been known, may find more or less widespread expression in the somatic sensory nerve territory issuing from the segments of the cord related to the organic nerves stimulated on the principles discussed by James MacKenzie and Head. These inconvenient consequences do not follow even the powerful systolic palpitation of a normal heart in a normal situation. It is reasonable to suppose, therefore, that to provide the enlarged and powerfully pulsating heart with a proportionately large interspace void of osseous resistance might prove a means of sparing its energy."

The case reported concerned a boy of 19, whom Dr. Morison had observed at intervals for six years. The chief lesion present was aortic regurgitation. The heart had steadily increased in size till ultimately "the area of cardiac dulness measured 5½ x 5½ inches, the apex beat was in the 6th space 5 inches from mid-sternum, the area of palpable concussion measured 3 x 4 inches, and was covered by the 5th and 6th ribs over an extent of four inches, including their cartilages." He suffered greatly from breathlessness and pain in the chest, and was latterly unable to get about. The pain occurred in attacks which Dr. Morison calls "anginoid," but which (he says) ought properly to be called "anginal." They had become very frequent and often disturbed his sleep. The operation, performed by Mr. Stabb, consisted in the removal, from under a U-shaped flap, of about five inches each of the 5th and 6th ribs from sternum outwards. "The effect of the operation, objectively and subjectively was very satisfactory. The space previously occupied

by the 5th and 6th ribs now consists of a soft unresisting cushion formed by the 4th, 5th and 6th intercostal spaces and the sites of the removed ribs. The palpating hand finds little thoracic concussion, but the powerful throb of cardiac systole into the yielding covering of the heart. The other physical signs remain as before, but the exaggeration of carotid and suprasternal pulsation is less marked and the blood pressure registered is from 120 to 130, and at times as low as 115. The apical presystolic rumble is not to be heard. The only palpable thrill is basic (aortic) and diastolic in time."

Two months after operation, the patient stated that he was able to get about "quite well," and that he had not experienced his present condition of thoracic comfort since childhood. He had also increased five pounds in weight since leaving hospital. The diminution in his anginal pain had been most gratifying; the frequency of the attacks and the degree of pain had both greatly diminished.

The author reproduces blood pressure records and sphygmograms, showing the beneficial effect of the operation. "The operation," he remarks, "does not seem to have reduced his normal blood pressure, but to have greatly modified the tendency to an erythetic rise of it. This can only be from the removal of some physical as distinguished from emotional incentive to erythism, and that incentive we are surely justified in regarding as the osseous provocation to cardiac stimulation removed by thoracostomy.

"We may, therefore, without any undue exercise of the imagination, conclude that one cause, at least contributory, to attacks of angina in aortic valvular disease with hypertrophied heart is direct stimulation of the organ by systolic impact against costal resistance, and this may also be regarded as a cause of the premature failure of the hypertrophied heart so frequently observed in practice."

MEDICINE.

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON, AND HOWARD.

FLEXNER AND JOBLING. "An Analysis of Four Hundred Cases of Epidemic Meningitis treated with the Anti-Meningitis Serum." *Journal of Exp. Med.*, Sept., 1908.

The cases analysed have been collected from a number of different observers in Great Britain, the United States and Canada. The results obtained strongly support the contention of the writers of this article, that the serum treatment greatly lessens the mortality of the disease

In 393 cases treated by serum there was a mortality of 25 per cent 43 fatal cases, however, are excluded from this series owing to their being moribund, fulminating in type or affected by secondary or mixed infections. Even with these cases added, there is a great reduction in mortality, which averages at least 75 per cent. in untreated cases.

Very striking is the results of treatment in children under one year, an age when the disease is almost uniformly fatal. With serum 50 per cent. recovered, and the analysis indicates that almost all the fatal cases come under treatment as late as the third week of the disease. Favourable results may therefore be anticipated when the injections are begun at an early stage, before hydrocephalus with consequent locking up of infected material in the ventricles occurs. The earlier the treatment is begun the more likelihood is there of a favourable outcome—thus a mortality of only 16.5 per cent. occurred in cases treated in the first three days, whilst it rose to 35 percent. when treatment was instituted later than the seventh day. Benefit may, however, be obtained even in the later cases, particularly when diplococci are found in the exudate. With serum a critical termination of the symptoms occurred in 25 per cent. of cases, and a larger proportion of these cases occurred in cases coming under treatment early in the disease. Relapses requïre a prompt and vigourous resumption of the injections, when their progress is often arrested and a favourable outcome results.

The diplococci rapidly diminish after the injections, disappearing from the fluid and becoming intra-cellular, together with changes in appearance and a lessened viability in cultures. In 110 cases the diplococci disappeared and lost viability rapidly, and in 10 cases slowly. Diplococci occasionally lurk in favourable *niches* and from these reinfection doubtless takes place.

The special exudate rapidly loses its turbidity, and associated with this is a rapid fall in the leucocytes of the blood, a change which is to be regarded as a favourable sign.

The conclusions drawn from the analysis of the cases are that the duration of the disease is materially shortened, that chronic types and lesions are prevented and the mortality greatly lowered.

CURT. SEIDEL. "The Treatment of Septic Diseases with Collargolum Enemata." *Deut. Med. Woch.*, July 30th, 1908.

The writer strongly recommends the use of collargolum in enemata, regarding this method as easier of application than the intra-venous, although having the disadvantage of being slower in its action.

Larger doses are recommended than are commonly used, and instead

of .2 to .5 g., 2.5 to 5 g. should be used in severe cases, as the initial dose. This is administered twice daily and gradually lessened in quantity, and continued for two or three weeks. Before giving the remedy the rectum should be washed out with soap and water, followed by normal saline or bicarbonate of sodium solution to remove mucus which interferes with absorption. A chill frequently occurs in one to five hours after the remedy is administered.

The rate of absorption can be judged by the use of the Röutgen rays. In one instance observed, the greater part was absorbed in an hour, and almost all in the second hour. If the preliminary washing is omitted, the intestinal mucus interferes with absorption, and a distinct shadow may be seen six hours later.

In milder cases smaller doses may be used, beginning with 1 g. and reducing the dose after a few days to .5 g., and continued for not less than eight to fourteen days. Within a few days there is almost always an improvement in the general condition: increase in appetite, lowering of temperature and pulse and localisation of the disease.

A number of illustrative cases are recorded, amongst them recovery from a very severe gonococcus infection acquired by a surgeon through a wound in the finger.

Not only are the septic diseases benefitted, but a variety of other infections, such as pneumonia, typhoid, epidemic meningitis, dysentery and infectious gastro-intestinal catarrh, particularly in children.

Cushing & Bordley. "Subtemporal Decompression in a Case of Chronic Nephritis with Uræmia; with Especial consideration of the Retinal Lesion." *Am. Jn. Med. Sc.,* Oct. 1908.

The case on which this paper is based was one of uræmia, in which marked improvement took place after removing a plate of four and opening the dura beneath the temporal muscle. After a few days the headaches subsided; there was no further nausea or vomiting; her stupor disappeared; the usual lethargy state was replaced by a normal mental activity. Death ultimately occurred from cerebral hæmorrhage.

The operation was based on the view that the symptoms of uræmia are due to increased intra-cerebral pressure, and not to the generally accepted theory that they result from a toxic process. Many of the symptoms of uræmia correspond to those of increased pressure, notably headache, vomiting, drowsiness and vertigo, and the disturbances of respiration culminating in the Cheyne-Stoke's type. Local œdemas may account for focal palsies of cerebral origin which not infrequently occur in advanced renal disease, and owing to the reason that œdema is an evanescent condition, there is no evidence of it post mortem.

Clinically this view is supported by the relief often obtained in uræmia by lumbar puncture.

In a number of cases the writers have found that albuminuric retinitis shows a striking improvement after lumbar puncture, as does also the accompanying headache and vomiting, but unfortunately, as might be expected, improvement is only transitory.

The case recorded is the first in which deliberate surgical intervention has been carried out for the relief of uræmia. It is not, however, the first recorded operation. Byron Bramwell records a case of uræmia in which the skull was opened for the mistaken diagnosis of cerebral abscess. An abundance of cerebro-spinal fluid escaped after puncture, evidently from the ventricule. The patient made an uninterrupted recovery, the headache and vomiting subsided, there was no return of the epileptiform attacks, the optic neuritis immediately declined, and in the course of a few days entirely disappeared. Bramwell, on the strength of this case, suggests the advisability of trephining in such cases of uræmia as have failed to be relieved by the ordinary remedies.

The writers suggest the propriety of permanent decompression in selected cases of renal disease when medical measures or lumbar puncture have failed to relieve cerebral uræmic symptoms, or when blindness is threatened owing to rapidly advancing degenerative changes of the neuro-retinal tissues.

H. Hochhans. "On Fatal Cerebral Affections without Anatomical Lesions." *Deut. Med. Woch.*, Sept. 24, 1908.

Cases of hemiplegia have long been recognized without an anatomical basis, and the writer records several instances of this nature. In these, distinct paralysis was present on one side, sometimes with increase of the deep reflexes, ankle clonus and Babinski's sign. ,

Jacobsohn distinguishes two classes of cases, in one coming on suddenly in individuals in good health, and usually showing well marked sclerosis of the vessels, especially those of the brain and often interstitial nephritis. In the other class the individual was usually the victim of some chronic disease: uræmia, tuberculosis, pneumonia, and some other infection or intoxication. Following older writers Jacobsohn explains these cases as being due to circulatory disturbances or to the direct action of toxic agents. Oppenheim regards the toxins of carcinoma as responsible for some of these cases. Sauyer, however, records a unique case in which a hemiplegia was associated with a sarcoma, and although the gross appearances were normal the membranes showed a microscopic infiltration of sarcomatous tissue.

The cases recorded by Hochhans are for the most part associated with vascular disease, but no definite statement is made as to the connection between the symptoms and anatomical conditions.

OTO-LARYNGOLOGY.

UNDER THE CHARGE OF DRS. BIRKETT AND JAMIESON.

M. A. Goldstein, M.D. "Retro-Pharyngeal Abscess." *Lancet,* January, 1908.

Dr. M. A. Goldstein reports three cases with the following unusual features: One case was diagnosed as quinsy by the family doctor who made several incisions into the peritonsillar tissue without any relief; another was reported by the pathologist, who examined a section from the bulging posterior pharyngeal wall, as showing "distinct evidence of lympho-sarcoma;" and the last case, which had been previously treated for bronchitis, grippe, tuberculosis of the neck, syphilis, etc., was so choked up that examination was most difficult. Eventually an emergency tracheotomy had to be performed to relieve the increasing dyspnœa.

All three patients, who were under twenty-one months, made a rapid and uneventful recovery, after the abscess was opened by an incision into the posterior pharyngeal wall at the site of bulging.

Dr. Goldstein draws attention to the fact that in those cases fluctuation cannot always be made out, owing to the thickness and induration of the pharynx muscle.

The frequency of retro-pharyngeal abscess in children under five, and its increasing rarity, the older the child, is explained by the "unusual activity of the lymphatic ring and of the lymphoid tissue in the pharynx" during early life and the progressive atrophy of the same with the advance in years.

The author does not include in his paper those cases of retro-pharyngeal abscess due to tuberculosis or syphilis of the vertebra.

Professor E. Hédon. "Paralysis of the External Rectus Muscle of the Right Eye occurring in a case of Acute Otitis Media, complicated with mastoid involvement." *Archives Internationales de Laryngologie, D'Otologie et de Rhinologie,* April, 1908.

The patient, a man aged 35 years, during the course of an attack of influenza, developed a bilateral acute otitis media. Despite frequent paracentesis of the membrana tympani, both mastoids became affected. Following a primary mastoid operation, the left ear was cured, but the

right continued to discharge freely, and for four days later the patient was seized with intense pain over th right temporal region, ra diating over the frontal and parietal areas. As the pain was thought to be due to an accumulation of retained pus, a radical mastoid operation was performed, and though the dura mater, and lateral sinus were exposed, nothing was found to explain the condition. The intolerable temporal pain continued unabated, and there also developed lachrymation of the right eye, and redness of the conjunctiva, due to a marked dilatation of the vessels, and not an inflammation. Seven days after the radical mastoid operation, there suddenly occurred complete paralysis of the external rectus muscle of the right eye. All the other muscles of the eye and its appendages were absolutely normal.

It was only after a month and a half that the pain and paralysis had completely passed away, when the patient was restored to perfect health. The writer cites this case as an example of "Gradenigo's Syndrome," because it presented the symptom-complex of:—

1. An acute otitis media with involvement of the mastoid;
2. Intense pain in the temporo-parietal region on the same side as the otitis;
3. Paralysis of external rectus muscle of the eye of the same side.

In the absence of fever, slowing of the pulse, and, in fact, any sign of cerebral trouble, meningitis, or other inter-cranial complications could not be considered as ætiological factors.

Professor Hédon claims that the phenonmon is due to a neuritis of the fifth and sixth nerves, brought about, according to Gradenigo, by an osteitis of the apex of the petrous portion of the temporal bone and a surrounding localized pachymeningitis, which compresses and sets up an inflammation of the nerves at a point where, after piercing the dura mater, they lie quite isolated immediately behind, and to the outer side of the posterior clinoid process.

The conclusion drawn from the study of fifty-seven similar cases of "Gradenigo's Syndrome," is that in paralysis of the external rectus muscle of the eye occurring as a complication of acute otitis media spontaneous recovery is the rule, and consequently no special treatment is required.

Fernand Perez, M.D. "The Bacteriology, Ætiology and Prophylaxis of Ozæna of Atrophic Rhinitis." *Annales des Maladies de l'Oreille et du Larynx, du Nez et du Pharynx,* May, 1908.

In an original article on "The Bacteriology, Ætiology and Prophylaxis of Ozæna of Atrophic Rhinitis," Dr. Fernand Perez, of Buenos-

Ayres, claims that ozæna is due to a specific micro-organism, and that it is contagious.

From the nasal discharge of patients suffering from ozæna he isolated a new, and heretofore unknown, organism, which he calls the "cocco-bacillus fætidus ozenæ." As its name implies, it is a cocco-bacillus, non-motile, negative to Gram, ærobic or facultative anærobic, grows well at ordinary temperature on all media, does not liquify gelatine, nor co-agulate milk, and emits a pronounced special and typical foul odour from the various cultures.

In fifty cases of rhinitis of different kinds, the cocco-bacillus fetidus was found only in the cases of ozæna.

Rabbits that were inoculated with the culture speedily developed a profuse, purulent, hæmorrhagic nasal discharge, from which the characteristic cocco-bacillus was obtained. Moreover, a later examination showed a complete atrophy of the anterior turbinates.

In support of the contagiousness of ozæna, the author cited his clinical experience. In ninety-three cases he found the infection came from some member of the patient's own family, and in thirty-five cases from some person outside his own family. The contagion is not virulent like measles or scarlatina, but is slow and difficult, requiring a prolonged and intimate contact, such as would occur among the members of a family. The infection is transmitted by nasal discharges, sputum, caresses, and the interchange of pocket handkerchiefs.

As the result of extensive bacteriological experiments and researches among different species of animals, it was found that the dog was the normal host of the "cocco-bacillus fetidus ozenæ."

With those facts in mind, Dr. Perez formulated the following rules for prophylaxis:—

1. The prevention of the cohabitation of dogs and people, especially children;

2. The avoidance of prolonged and intimate contact of healthy individuals with those suffering from ozæna;

3. The disinfection of patients' handkerchiefs, toilet and table articles;

4. The use of paper handkerchiefs that could be burnt after once used.

J. T. R.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The first regular meeting of the Society was held Friday evening, October 2nd, 1908, Dr. J. Alex. Hutchison, the President, in the chair.

The address of the retiring president, Dr. Wesley Mills, was read.

PATHOLOGICAL SPECIMENS.

The followink pathological specimens were presented by Dr. Oskar Klotz:—

ACUTE PNEUMOCOCCAL MENINGITIS.

The first specimen is the brain of a young man of whom but little history could be obtained. He was found in his room in an unconscious state. He had marked rigidity of the neck and limbs, and resisted passive movements. There was a definite double Kernig sign. The pupils were active to light; the right was slightly dilated. There was no eruption on the skin. Lumbar puncture gave a turbid fluid, in which many Gram positive diplococci of lanceolate shape were obtained. The cultures proved the organisms to be the pneumococcus.

The patient only lived twelve hours after admission. At autopsy, the brain and cord showed a purulent meningitis, not unlike the typical epidemic cerebrospinal meningitis. There was a purulent exudate diffusely distributed over both hemispheres and base. The ventricles were filled with a purulent fluid, and the ependyma was covered with fine granulations and petechial hæmorrhages. Pneumococci were again isolated from the exudate. The right middle ear was healthy. The left middle ear and mastoid cells were filled with a gelatinous material from which pneumococci were obtained.

There was also an early acute peritonitis (without fluid exudate), from which the pneumococcus was obtained in pure culture. Pneumococci were isolated from the heart's blood.

The origin of the infection seems to have been the left middle ear, from which a pneumococcal septicæmia developed with localized foci in the meninges and peritoneum.

TRACHEAL AND BRONCHIAL DIPHTHERIA.

The second specimen is not presented on account of its rarity, but rather as an instructive one. The patient from whom the specimen was taken, suffered from diphtheria.

On examining the specimen, you will see that there is no membrane in the pharynx and very little in the larynx. The trachea and bronchi

on the other hand are plugged with membrane, even in the remotest part of the lung. The tongue was considerably swollen, and diphtheria bacilli were obtained from the crypts. The membrane in the trachea begins a little way below the larynx and forms a continuous layer into the bronchi, completely plugging many of them. About the plugged bronchi there is a pneumonic process in the lung. Diphtheria bacilli were demonstrated in the membrane of some of the small bronchi and lung tissue.

The disease in this case, whether beginning in the pharynx or the deeper respiratory tract developed its most prominent lesion in the lower trachea and bronchi. Here neither intubation or tracheotomy could be of any avail.

C. B. KEENAN, M.D.—The pathological report of this case was presented briefly by Dr. Keenan.

J. ALEX. HUTCHISON, M.D.—In my experience I have never had a case of simple stricture of the small bowel, and Dr. Garrow is to be congratulated that this was a simple condition. Were it malignant, it would be in a part of the bowel where malignancy is primarily active and the patient would not have done so well. The patient's gait as he walks across the room makes one think of ataxia and I should like to ask if Dr. Garrow has detected any indications of ataxia, especially in view of the statement that there was no history of lues.

A. E. GARROW, M.D.—The patient's reflexes were quite active, and this gait has only developed since he came out of hospital.

A. LAPTHORN SMITH, M.D.—I have occasionally come across cases of great suffering caused by partial stricture of the intestine. The most recent was a woman who consulted a friend of mine for constant pain in the abdomen. On careful examination, much was found wrong with the pelvic organs, and he asked me to help him remedy these conditions. Five days afterwards he asked me to again see her when she was found to be in a bad condition from obstruction of the bowels. Immediate reopening was advised, and on doing this the cause was found about an inch from the cæcum in the small intestine, and it was due to bands of adhesions, the result of one or more previous attacks of chronic appendicitis. The stricture was about the size of a lead pencil, and about two inches in length. Immediately on freeing the adhesions, the distended intestine at once emptied itself through this narrow place and the contents ran into the cæcum. The woman died, not from the ventrofixation, not from her recent operation, but from failure to recognize and remedy the true condition of the appendix which caused her death. The moral

is that in many patients suffering from uterine pains and stomach troubles, if we would always look for the cause of these troubles at the appendix or around the appendix, we would very often find it there. The woman's whole trouble was due to almost complete stricture of the small intestine. The cause of the case before us must, I think, have been due to something the matter with the mucous membrane or with the peritoneum outside. I do not think the muscle ever is the cause of such obstructive ulcerations.

JOHN MCCRAE, M.D.—This is a very remarkable specimen, and one is hard put to it to find a causation; the stricture is so perfectly an annular one that one has to consider it as no mere ordinary ulceration as a typhoid ulcer would be. The whole wall has been affected at one time. Here, one has not to deal with an ordinary trauma, a hard piece of food, or thrombosis, and one is reduced to the possibility of a temporary intussusception having occurred at some time which may in a very few minutes cause the loss of sufficient mucosa to give rise to the beginning of such a perfect annular stricture, and one, perhaps, may imagine a case where such an occurrence might happen, and the man be cognizant of nothing more, perhaps, than half an hour's severe colic.

F. R. ENGLAND, M.D.—Dr. McCrae's suggestion brings to my mind a case which was brought before this society, where the intussusception did occur in the jejunum, and nature caused the intussusception to separate, necrose away and be regurgitated in the stomach and the man vomited it. The man recovered.

DEMONSTRATION OF A PELVIMETER.

DR. H. M. LITTLE presented a modified form of pelvimeter.

J. C. CAMERON, M.D.—This little instrument is practical and will help us to obtain a correct measurement of the pelvic outlet more easily than by the pelvimeters in ordinary use. I am glad that Dr. Little has proved the usefulness of his pelvimeter clinically before bringing it before the profession. Unfortunately some of the instruments which we see figured in our books, seem to have existed only in the mind of the inventor, in the sketch prepared for publication, or perhaps, in a model made for him by an instrument-maker, and have not been put to the best of practical experience. A valuable feature in Dr. Little's pelvimeter is the simple device on the back for the estimation of the pubic angle. We have several such instruments, but they are more complicated and require some mathematical calculation. When a pelvimeter is not at hand, a tape can be used to determine the distance between the tuberosities, and in most cases is sufficiently accurate for practical purposes.

I have here the pelvimeter figured by Dr. Williams, of Baltimore, in his book; I find it too light, and not as accurate or serviceable as the instrument devised by Dr. Little.

A. Lapthorn Smith, M.D.—I see a great advantage in this instrument, for it will now be possible to predict almost surely whether we will have a tear or not. That is just the one thing I have been wanting for my method of putting in a stitch or two before the tear occurs. If the instrument can foretell this and the operator puts in a stitch, then he will find that the number of infected cases will be very small indeed.

SOME LABORATORY NOTES ON GASTRIC ACIDITY.

The paper of the evening was read by Prof. R. F. Ruttan.

C. B. Keenan, M.D.—I have been greatly interested in Dr. Ruttan's remarks, and I am certain they will prove of great value. The analysis of stomach contents in the past done in the ordinary method, has often proved misleading as to the pathological condition there present, and Dr. Ruttan points out wherein the fallacy may have occurred. I believe in the light of this paper that the findings in analysis of stomach contents in the future will be of much greater aid in forming a correct diagnosis.

Henry S. Goodhall, calls attention to the intimate relation of pleurisy to pulmonary tuberculosis, which he supports by reference to modern statistics, among which are included those of Stony Wold Sanatorium. He considers first pleurisy as a complication of tuberculosis. This is frequent, and long treatment is indicated. The withdrawal of all the fluid contained in the pleural cavity is not beneficial when tuberculosis is present. The diagnois of tuberculosis pleurisy is established by the history and the finding of the bacilli in the pleuritic fluid, confirmed by animal inoculation. Differential blood counts are of little value. A very large percentage of serofibrinious pleurises may be demonstrated to be tuberculous in origin. Every case of pleurisy should be carefully examined and every effort made to ascertain whether it is tuberculous—*Medical Record,* June 27, 1908.

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HEART DISEASE AND PREGNANCY.

BY

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The study of heart disease in its relation to pregnancy should interest every medical man, whether he is engaged chiefly in obstetric practice, or whether he is devoting himself mainly to general medicine. The physician should be able to forecast the probable effects of pregnancy and labour upon those of his patients who are suffering from heart troubles, while the obstetrician should know how endocarditis and chronic valvular disease may modify or derange the course of pregnancy, labour and the puerperium in patients whom he is expected to confine. Unfortunately professional opinion regarding these matters is, as a rule, rather vague and uncertain, partly because of the persistence of certain venerable traditions, and partly because teachers and text-books have devoted too little attention to the subject. They have not taught us clearly enough that the various forms of heart disease affect pregnant women in different ways, and that it is fundamentally important to make an exact diagnosis before we attempt treatment. We cannot even approximately estimate the risks and damages run by such patients, or lay out a rational line of treatment for them, until we have made out the condition of the heart and estimated the degree of compensation present as well as the probability of its continuance. It used to be a common belief among the laity that heart troubles are rare in pregnancy, that such patients have a certain immunity from pregnancy, and that even if they do become pregnant, their cardiac troubles may improve or at any rate will not become worse. Routine examination of hospital cases proves that heart troubles exist in from one to two per cent. of pregnant women, and clinical experience shows that cardiopaths are not usually sterile, that they are not specially liable to abort, that the majority of them may

bear a living child safely, especially in their first pregnancy; but it is also certain that each recurring pregnancy aggravates their heart lesion and increases its danger, and that disastrous results are most apt to occur in those women who have been weakened by several pregnancies occurring in rapid succession. Indeed, it is not uncommon for women to go safely through one pregnancy or even several without the existence of a heart lesion having been even suspected; this is particularly apt to occur in cases of mitral incompetence with good compensation. A routine examination of the heart in all pregnant women would prevent such an oversight and would show also how frequently cardiac complications do exist and how a little care will generally enable us to deliver such patients safely. Although it is undoubtedly true that endocarditis and valvular disease are serious complications of pregnancy, needing constant watchfulness and care, yet nevertheless it is equally true that the danger has been very much overrated, and that the presence of heart disease is not a necessary, nor even a frequent indication for the induction of abortion or premature labour.

CAUSES AND COURSE.

A cardiac lesion may have existed before pregnancy began; in such a case it may be said that pregnancy complicates the heart disease. The cardiac trouble may have been latent, and by pregnancy it is developed and made known. Finally, it may begin during pregnancy or the puerperium, and then it must be considered a complication of pregnancy. In the latter case it is the result usually of rheumatism or some other intercurrent disease, or has been produced by toxæmia or septic infection. But whatever may have been the cause, the heart lesion is always aggravated by pregnancy, especially after the fourth or fifth month, while on the other hand the course of pregnancy may be more or less seriously affected by it. There may be a miscarriage; or if the patient reaches term, she may die during or after labour or in the puerperium; or even if she escapes with her life, she may be left with a crippled heart, more or less of an invalid for the rest of her days.

It is not hard to understand why pregnancy affects heart troubles injuriously. In the non-pregnant state, when an attack of endocarditis leaves a valve contracted or incompetent, the circulatory balance is restored and maintained by a compensatory hypertrophy. But when pregnancy occurs in such a case, it complicates matters by calling upon the heart for still more compensation while the conditions are becoming less and less favourable for such repair as pregnancy advances. Tension is increasing, the nutritive quality of the blood is impaired, since it must not only provide material for the growth of the fœtus, but must also

carry off the increasing amount of waste matter eliminated by it. The enlarging uterus and the increasing intraabdominal pressure crowd up the diaphragm, displacing the heart, preventing the full expansion of the lungs and consequently limiting their oxygenating power. It is easy to understand therefore, how it becomes increasingly difficult to establish and maintain compensation as pregnancy advances. It may be urged that some observers deny the existence of cardiac hypertrophy in normal pregnancy, claiming that the increase in the area of cardiac dullness is due to upward displacement of the heart and not to hypertrophy. Other observers, too, assert as the result of experiment and actual measurement, that the lung capacity remains constant in normal pregnancy. But it is hard to admit the validity of such claims, when every day we see for ourselves how easily breathlessness on exertion is produced, and how quick and shallow the respiration usually is in pregnant women. As the result of clinical observation, it seems only reasonable to infer that the capacity of the lungs is decreased and expansion becomes limited directly in proportion to the growth of the uterine tumour. It is also well established clinically that in cases of pregnancy complicated with heart disease, it is rare to find urgent dyspnœa in primigravidæ, and that when it does occur in multigravidæ it begins usually about the fourth or fifth month, and becomes more distressing as the abdomen enlarges, and that very slight causes may then produce heart failure.

PROGNOSIS.

As regards their degree of dangerousness, cardiac lesions in pregnancy are usually arranged in the following order:—Mitral stenosis, aortic insufficiency, mitral insufficiency alone or complicated with stenosis or some aortic lesion.

Practically, however, such a classification must be accepted with caution, for it is difficult or impossible to base a prognosis merely upon the variety of valvular disease present in any given case. The primiparity or multiparity of the patient, her general health and nutrition, the condition of the kidneys, the amount of compensation present and the ease with which it is upset or restored, the patient's ability to remain quiet in bed free from exertion or excitement, and the way in which she responds to treatment,—all these things are of more importance in estimating the probable result than the kind of anatomical lesion present.

MITRAL STENOSIS.

Since less blood than usual passes through the narrowed mitral orifice, such patients as a rule are poorly nourished, weak and anæmic. In labour, the first stage does not cause any particular distress; not until

the bearing down pains of the second stage begin, do symptoms of constitutional disturbance appear. Then with glottis closed, the lungs tense with air, the diaphragm depressed, and the uterus and abdominal muscles in strong and frequently recurring contractions, an increased amount of blood is driven into the veins and forced along towards the already engorged right heart. Relief can not come from the front, because the narrowed mitral allows but an insufficient quantity of blood to pass through into the left ventricle, and the blood is dammed back upon the left auricle which consequently distends, thus offering still greater resistance to the unloading of the lungs and engorged right heart. The symptoms, therefore, are decreased blood pressure, an irregular, small, rapid, flickering pulse, and cyanosis which tends to increase. The character of the pulse is explained by the fact that enough blood does not enter the left ventricle for it to pump a full stream, and the cyanosis is explained by the increasing engorgement of the right heart. As the bearing down efforts continue, the strain increases, and narcosis or death may occur if the tension is not relieved. At the close of the second stage, if free hæmorrhage takes place from the uterus, the right heart may be somewhat relieved; but whether it is or not, a new danger must be faced presently—on account of the cessation of the placental circulation and the contraction of the uterus, a large quantity of blood is liberated and is forced into the veins. Under this new strain the right heart may become so embarrassed that it may cease to contract and sudden death occurs. What then is the danger of labour in a case of mitral stenosis? Evidently it lies in overdistension of the right heart brought on by the frequent bearing down pains of the second stage, and later by the blood from the utero-placental vessels being suddenly poured into the engorged veins during the third stage. What is the remedy? Shortening the second stage, preventing or moderating the bearing down pains by means of morphia, chloroform or ether, and delivering artificially as quickly as possible. After the birth of the child, encouraging free bleeding from the uterus, and if that does not relieve the cyanosis and strengthen the failing shabby pulse, venesection (eight to sixteen ounces) will relieve the strain and tide the patient over the critical point of pressing danger. As bleeding from the uterus is to be encouraged, not checked, ergot should not be given and frictions to the fundus should not be used. After the urgent danger is over, perfect rest should be secured, by a small hypodermic of morphia if necessary, and the heart should be stimulated by hypodermic injections of strychnine and digitaline.

MITRAL INSUFFICIENCY.

This is the commonest of the heart complications of pregnancy. In most of the cases there is good compensation and labour terminates

safely, consequently this form of cardiac lesion is generally considered to be less dangerous than mitral stenosis or aortic disease. This hopeful view should not lead us to underestimate the danger or to be less watchful and careful in the matter of treatment. When the insufficiency is great, especially if there is also tricuspid regurgitation, no form of heart disease is more desperate or has a gloomier outlook. When a woman with a damaged mitral is subjected to the strain of rapidly recurring pregnancies, sudden and unexpected breakdown is apt to occur. She may have gone through two or three pregnancies safely and without any alarming symptoms, but each time it is becoming harder to get good compensation, until finally the limit is reached and the crash comes. In mitral insufficiency, the hypertrophied left ventricle throws the blood with great force back against the leaky valve, the left auricle dilates, the lungs become engorged and cough and hæmoptysis are common symptoms. Unlike mitral stenosis, the symptoms of mitral insufficiency are not much relieved by the emptying of the uterus, for the left ventricle goes on pumping back the blood as before, keeping up the distension of the left auricle along with the consequent engorgement of the lungs and the right heart. The bearing down pains of the second stage increase the action of the left ventricle and intensify the symptoms. Cyanosis, passive pulmonary congestion, œdema, and irregular pulse of low tension are the prominent features. These patients convalesce slowly and need careful watching and judicious treatment for weeks or months. Relief comes only from resting the heart and building up compensation. The patient may die in a few days, weeks or months after labour, generally as the result of some imprudence. The signs of danger during labour are an irregular failing pulse, restlessness and dyspnœa, along with increasing cyanosis.

WHAT SHOULD BE DONE IN SUCH CASES?

The first stage should be allowed to go on naturally, meanwhile securing free watery movements and steadying the heart with digitaline. When the second stage begins, morphia, chloroform or ether will relax the muscles, check or moderate the bearing down pains, allow the vessels to dilate and blood pressure to fall and the strain on the right heart to moderate. Delivery should be effected as soon as possible by artificial means, free bleeding from the uterus should be promoted, and hypodermic injections of strychnia and digitaline should be given as circumstances require. During convalescence, careful feeding, tonics and prolonged rest in bed are necessary. The patient should be warned against the danger of a future pregnancy.

Mitral stenosis and mitral insufficiency sometimes coexist, and in such cases the symptoms of stenosis usually predominate. The prognosis is graver than when either lesion exists alone.

AORTIC INSUFFICIENCY

is a comparatively rare complication of pregnancy. As the chief cause of this lesion is degenerative change in the aorta and its valves, and as such changes usually occur later in life when pregnancy rarely occurs, the infrequency of this lesion may be understood. The danger is most marked after the fourth or fifth month when increase in the blood mass and in blood pressure aggravates the regurgitation and disturbs left ventricle compensation, even although hitherto it has been fairly well adjusted. The symptoms are œdema, dyspnœa, restlessness and insomnia. The second stage is disastrous; the bearing down pains increase the blood pressure, regurgitation becomes greater, the left ventricle must work harder to empty itself, and finally the end comes by syncope. This is the form of heart disease which calls for prompt emptying of the uterus, no matter whether the child is viable or not, whenever the symptoms of distress manifest themselves. Positive indications for immediate interference exist, when such symptoms appear early or persist in spite of rest and treatment.

AORTIC STENOSIS

is also rare and is seldom found without the mitral valve being more or less involved also. It is remarkable how often aortic stenosis and mitral stenosis are found to coexist.

TREATMENT OF PREGNANCY COMPLICATED WITH HEART DISEASE.

As soon as the lesion is discovered treatment should begin. The patient should be kept under observation and efforts made to guard and maintain compensation. It is not wise to wait till a breakdown occurs, for it is much easier to prevent the loss of compensation, than to restore it after it has been lost. Such patients should be kept from excitement, over-exertion and fatigue. Long walks, hill climbing, runing up and down stairs, hot baths, alcoholic drinks, going to theatres and concerts, or to meetings in overcrowded, ill-ventilated halls, may do serious damage—gentle exercise and plenty of fresh air are helpful when the patients' condition will permit. The bowels should be kept free, not only for the purpose of relieving the circulation, but also to lessen the chances of toxæmia developing. Upon the appearance of such symptoms as dyspnœa, palpitation, a feeling of oppression, cough, hæmoptysis or œdema, the patient should be put to bed at once and kept absolutely at rest. An icebag or cold compress over the heart may give relief when

the pain is severe. Frequent dry cuppings, sinapisms or turpentine stupes are useful when there is much lung engorgement with dyspnœa and local pain. A small hypodermic of morphia acts like a charm when dyspnœa is urgent. Œdema with quick irregular pulse calls for digitalis. The prolonged and free use of strychnia often enables us to tide the patient safely along to term or at least to the period of the child's viability.

It has been shown experimentally that digitalis is an irritant to unstriped muscle, and may excite uterine action. Consequently it has been urged that digitalis should not be given to pregnant women with heart trouble, for fear of bringing on abortion. According to our experience no such complication need be feared with moderate doses of the drug, and we are in the habit of giving it as freely as we give strychnine when it is indicated.

If the patient is seen early and compensation is good, if it is the first pregnancy or if there is no exhaustion from rapid child bearing, she may be allowed to go on to term, the compensation meanwhile being closely watched. If the patient is not seen until the heart symptoms are marked, the first endeavour should be to build up compensation by absolute rest in bed, dieting, etc. If that cannot be done, it will be best to induce labour as soon as the child is viable, in the thirty-fourth or thirty-fifth week, if possible, not earlier than the thirty-second, nor later than the thirty-sixth week. If only moderate compensation exists and the patient is allowed to go on to term, the chances of failure are increased. Clinical experience goes to show that better results can be obtained in moderately severe cases by inducing labour when the child is small and can be easily delivered than to allow the patient to go on to term with the chances of a large child and a difficult forceps or version operation. When the lesion is grave, the patient exhausted, and there is reason to believe that compensation will not be maintained, it is better to end pregnancy, whether the child is viable or not. When labour comes on, the first stage should be allowed to terminate naturally, unless urgent symptoms arise. A free bowel movement may be obtained, and digitaline may be given freely to strengthen and steady the heart. If this stage is prolonged, nutrition must be maintained and rest and sleep secured. When the os is fully dilated, the uterus should be emptied artificially under light anæsthesia of some kind. A hypodermic of morphia at the beginning of the second stage will soothe the pains, and then only a few whiffs of chloroform or ether will be required for the easy and rapid termination of labour. If the os is undilated, and rapid delivery is necessary, artificial dilatation of the os or multiple incisions of the cervix should be employed. After the

birth of the child, free bleeding from the uterus should be encouraged. Ergot and frictions of the uterus do harm by checking the loss of blood which might relieve the over-burdened right heart. If cyanosis persists and the venous pressure is not relieved, venesection will give the promptest results. Some recommend nitrite of amyl or nitroglycerine immediately after delivery when there is great dyspnœa and extreme high tension. It is better to allow the placenta to separate naturally and to come away without artificial assistance. If the strain of delivery has not been recovered from, the extra strain consequent upon the artificial separation and extraction of the placenta may prove the last straw, and the patient may collapse suddenly, as occurred in Case No. 1273. To obviate the ill effects of the rapid fall of intraabdominal pressure after the conclusion of the second stage, it has been recommended to apply a firm binder or to put a sandbag on the abdomen immediately after delivery.

The puerperium needs careful management. Strychnia, digitaline, morphia, laxatives, tonics and careful feeding should be used as circumstances require. The child should not be nursed even in mild cases; the mother needs all her strength and all the nourishment and rest she can get to enable her to recover from the effects of pregnancy and labour.

Prolonged rest in bed during the puerperium is imperative until involution is complete and compensation has become well established.

Whether or not, it is prudent for a young woman with a pronounced valvular lesion to marry, is a question sometimes submitted to the physician. In such a case the risks of marrying are always great, for the occurrence of pregnancy is certain to aggravate the disease and shorten life. It is best always to discountenance marriage under such circumstances. Whether our advice is followed or not, it is our duty to give the warning, and that with no uncertain voice.

ANALYSIS OF THE SERIES OF THIRTEEN HOSPITAL CASES.

These thirteen cases occurred out of a total of 1,022. Several have not been included in the list, because the heart lesion was moderate, the compensation good, the delivery spontaneous and normal, no special symptoms arose and no special treatment was required. If we include these milder cases, the proportion of pregnant women with cardiac lesions who were delivered in the Montreal Maternity would be about two per cent. Of these thirteen, there were:—

I	Gravidæ	3	There were under 30 years of age	8
II	"	4	30 years and over	5
III	"	2	The youngest	21
VII	"	2	The oldest	40
IX	"	1		
XIV	"	1		

Heart Disease in Pregnancy, Labour and the Puerperium. Cases Treated in the Montreal Maternity.

Case No.	Heart Lesion.	Lesion began this preg.	Began before	Age.	Gravida	Labour at or before term.	Pregnancy.	Labour.	Puerperium.	Anæsthesia.	Compensation	Highest Temp.	Results. Mother.	Results. Child.	Subsequent History.	Remarks.
859	Mitral Stenosis with Insufficiency	?	?	25	II	Term	Admitted in Labour	Spontaneous and Rapid	Uneventful	None	Good	-	+	+		Admitted in labour History hard to get and unsatisfactory
1405	Mitral Stenosis with Insufficiency	+	—	30	II	Term	Slight Oedema	Rapid—Low Forceps	Uneventful	M. gr. ½ Chlorof.	Good	98.8°	+	+	Good Health	
2937	Mitral Insufficiency	+		21	I	Term	Alb. Casts, Bronchitis	Spont. Rapid Collapse	Uneventful	(chlatet. degree)	Mod.	101.4°	+	+	Good Health	Towards end of 2nd stage, during chloroform, patient became suddenly cyanosed, breathing became bad and stopped. Artificial respiration restored breathing. Afterwards good and steady recovery.
1272	Mitral Insufficiency	—	+	30	II	Term	Under observation throughout preg. for mitral lesion, alb. casts Bronch.	Mid Forceps	Uneventful	Chlorof. (light)	Good	—	+	+	Good Health	Membs were ruptured and forceps applied to head in cavity, to save the strain of 2nd stage. Made a good recovery; discharged on 18th day. No special treatment required for heart trouble.
1273	Mitral Stenosis with Insufficiency	—	+	24	III	Prem.	Oedema—dyspnoea, cough.	Version and Extraction—Twins	—	M. gr. ½ Chlorof. (light)	Poor		—	—		After 4 days treatment in hospital, felt so much better that she insisted upon going home; 3 days later she returned in labour, in desperate plight, having walked ¼ mile mostly up hill. Both children presented by Breech; Chloroform was necessary to permit the hand being passed through O. I. Death occurred suddenly after manual extraction of the placentæ.
1290	Mitral Stenosis with Insufficiency	—	+	26	II	Term	Headache—Palpitation, dizziness, dyspnoea	Low Forceps	Dyspnoea, Cardiac Pain—Irregular Pulse	M. gr. ½ Chlorof. (light)	Mod.	99°	+	+	Feeling so much better, she insisted upon going home on 11th day. A few months later, she died at home	— —
1444	Mitral Stenosis with Insufficiency	—	+	35	VII	Term	Cyanosis, dyspnoea, cough, haemoptysis, oedema general	Twins—Breech presentations, extraction	Uneventful, rapid recovery	M. gr. ½	Poor	99.6°	+	+	In good condition a year afterwards	Heart trouble began after her first confinement
1750	Aortic Stenosis	+	—	25	II	Term	Slight Oedema	Forceps failed—Version and Extraction	Irregular, Intermittent Pulse for a few days	M. gr. ½ Chlorof. Ether	Fair	99.8°	+	+	A few months later was in good condition	Albuminuria, with plentiful granular casts.
3010	Aortic Stenosis	+	—	40	VII	Near Term	Slight dyspnoea, oedema, cyanosis, poor compensation	Low Forceps	Uneventful	None	Poor	100°	+	+	No Report	The history of previous pregnancies not satisfactory.
1458	Aortic Stenosis and Mitral Insufficiency	—	+	35	IX	Prem.	Oedema, cyanosis, dyspnoea, rapid breathing, palpitation, Cough, haemoptysis	Induction of Labor in 35th Week (Krause) High Forceps	Uneventful	Ether	Poor	98.6°	+	+	Insisted upon going home on 14th day. Was then in fair condition. Thirteen days afterwards was admitted to M. G. H. and died in 3 days of acute dilatation of heart.	The heart trouble began 7 years ago, and for 6 years she has been unable to do any hard work. Has been laid up several times with severe attacks, lasting 5 weeks. Her legs were swollen till a few months ago. Was confined to bed for 3 months before entering the Maternity.
1807	Acute Dilatation of Heart with Endocarditis involving Aortic and Mitral Valves, the latter prob. secondary	—	+	25	III	Before Term	Oedema, dyspnoea, pulm oedema	Spontaneous, very Rapid	Dyspnoea for a week—then good recovery	None	Poor	101°	+	+	Discharged much improved. Three months later entered W. G. H. Treated 2 weeks for chronic interstitial nephritis	—
1719	Myocarditis acute	+	—	24	I	—	General weakness and abdominal pain after a fall. Dyspnoea, frequent micturition—Headache	Undelivered	—	—	Much improved	—	+	?		Was discharged much improved in health. In a few weeks was so well that she was able to go home to the West Indies, where she would be confined.
2995	Myocarditis chronic	—	Probably	40	XIV	Term	Alcoholism—occasional fainting fits	Retained Placenta, collapsed 15 minutes after birth of child	—	None	Poor	—	—	+		Was an alcoholic, lived a hard rough life—drinking freely. The child steadily lost weight, seemed incapable of digesting anything. It died on the 8th day, having lost 640 grammes.

Abbreviations:—M Morphia.
\+ in 3rd and 4th columns, the appearance of heart lesion; in columns of results, favourable for mother, and born alive for child.
— in columns of results, death for the mother, and born dead for child.

A definite history of cardiac lesions previous to this pregnancy	6
Cardiac lesions arose probably in this pregnancy	6
Doubtful	1

Labour at term	8	Labour induced and high forceps	1
Labour shortly before term	2	Forceps, mid	1
Labour premature	2	Forceps, low	3
Undelivered	1	Version and extraction	2
Labour spontaneous	4	Extraction of breech	1
Twins	2		

Anæsthesia and narcosis during labour were employed as follows:—

Chloroform alone in	3 cases	Morphia, chloroform, and ether in	1 case
Ether alone in	1 case	No anæsthesia or narcosis	4 cases
Morphia alone in	2 cases		
Morphia and chloroform in	1 case		

RESULTS.

Mothers discharged in fair or good condition, 11 (1 undelivered); died, 2.

Children born alive in 11 confinements out of 12, 12 (one case of twins); born dead in 1 confinement out of 12, 2 (twins).

If we exclude the two cases of myocarditis without valvular lesion, the maternal mortality was 1 out of 11, or 9.09 per cent. In 10 cases of valvular disease out of 11, the mothers recovered and the children were born alive; in 1 case both mother and children (twins) died.

A full report of thirteen cases observed in the Montreal Maternity, was submitted. These have been published in the *American Journal of Obstetrics*. The chief points of clinical interest are summarized in the following table.

THE CULTIVATION OF THE MENINGOCOCCUS FROM EYE CONDITIONS COMPLICATING EPIDEMIC CEREBRO-SPINAL MENINGITIS.

BY

HANFORD MCKEE, B.A., M.D.

(From the Pathological laboratory of the Montreal General Hospital.)

Read before the section of Laboratory Workers at the Canadian Medical Association, Ottawa, 1908.

Metastatic ophthalmia occurring in epidemic cerebro-spinal meningitis is not a rare condition. Many of these cases are mild and undoubtedly have in the past been often overlooked. Many of them have been discovered only at autopsy. The percentage of cases of meningitis complicated by metastatic ophthalmia is given by Knapp as 4 to 5 per cent., by Heine as 5 per cent., and by Uhthoff as 4 per cent. The affection occurs as a rule in one eye, but has been reported in both by Knapp in one of ten cases, by Kreitmaier in one of twelve cases, by Seggel in one of four, by Uhthoff in two of eleven, by Heine in two of

five, by Markuse in one case, and by von Graefe in three cases. The clinical picture is a characteristic one and has been well recognized for years. Early in the course of the disease, generally between the first and third weeks, there suddenly appears a hypopyon iritis with exudation in the pupillary area. This condition very quickly assumes the well-known picture of pseudo-glioma. Often the characteristic yellowish appearance in the pupillary area is the first symptom pointing to any ocular complication.

While the condition has been well recognized clinically a bacteriological examination has been made in only a very few cases. Uhthoff upon three occasions tried to obtain the micro-organism by aspirating the vitreous, but with negative results. Axenfeld aspirated the anterior chamber and found microscopically Gram negative diplococci. Cultivation was, however, unsuccessful. From an eye examined at post mortem Axenfield later cultivated the meningococcus. Hanke and Tertsch have lately reported an interesting case. A seven months old child was referred to the eye clinic from the children's hospital with the diagnosis of inflammation of the lungs. The mother stated that eight days after the beginning of the illness she had noticed "an opacity of the right eye and the pupil had disappeared." At the first visit to the clinic a metastatic ophthalmia was diagnosed. (Irido-choroiditis chronica with pupillary and vitreous exudation). In the lower quadrant near the equator was noticed a bulging. When the child was brought back again eight days later a thick yellowish discharge was seen coming from the former prominent part. Markuse has also reported spontaneous perforation of the globe by a suppurative process caused by the meningococcus.

We had last year at the Montreal General Hospital a case of metastatic ophthalmia occurring in a case of epidemic cerebro-spinal meningitis. The case was as follows:—Child W. J. A., aged seven years, was seized June 9, 1907, with vomiting of blood-stained fluid. A few hours later he complained of pain at the back of his neck and frontal headache. He was admitted to the hospital at noon of the same day and became unconscious a short time after admission. When admitted he had in each eye bright subconjunctival hæmorrhages and during the next day there developed a hypopyon in the right eye. The patient died June 11th. The diagnosis was epidemic cerebro-spinal meningitis. At the post mortem the right cornea was seared with a hot surface. With a sterile hypodermic syringe the pus was withdrawn from the anterior chamber and was planted on hæmoglobin agar by carefully spreading the material over the surface of the medium. After 24 hours at 37 C. the growth was so thick that isolated colonies could not develop. The

micro-organism was a Gram negative diplococcus which coincided in every particular with the Gram negative diplococcus isolated from the cerebro-spinal fluid, i.e., meningococcus.

Axenfeld in writing on metastatic ophthalmia cites a case of Wintersteiner's and one of his own. There are also doubtful cases reported by Saltini, Silcock, Treacher Collins, Mayou and others. Wintersteiner saw in cut sections of a bulbus from a meningitis case Gram negative diplococci, both intra and extracellular. Uhthoff also found in sections Gram negative diplococci. Weichselbaum mentions the above case of Wintersteiner's and a case reported by Stevenson. The latter was a case of pan-ophthalmitis in the pus of which, associated with other bacteria, were found meningococci. Tooke reported a case of "hypopyon iritis associated with epidemic cerebro-spinal meningitis." There was, however, no bacteriological examination made of the pus in the anterior chamber.

It will be seen that a bacteriological examination with a differentiation of the Gram negative diplococci has been made in only three cases, that of Axenfeld, that of Hanke and Tertsch and the one here reported. The mere stating meningococci were found is not sufficient. In discussing Gram negative diplococci found in the eye it is necessary to differentitate between the gonococcus, the micrococcus catarrhalis and the meningococcus. That the gonococcus is a frequent factor in inflammation of the eye is well known. The micrococcus catarrhalis has been isolated from some catarrhal conjunctival conditions and from some cases of purulent ophthalmia, while the meningococcus has been cultivated both from the pus of the anterior chamber and from the conjunctiva, so that for diagnostic purposes the examination of a smear alone is of practically no value unless followed by cultivation and study of the micro-organisms. One would think the finding in a smear of Gram negative diplococci in eye conditions complicating meningitis ought to be proof of their being meningococci, but such is not the case. From Axenfeld's clinic last year was reported the isolation of the micrococcus catarrhalis from the conjunctiva of a patient ill with epidemic cerebro-spinal meningitis. Had the diagnosis been left to the morphology of the organism, it would naturally have been diagnosed meningococcus conjunctivitis. So much careless eye bacteriology has gone on record it is high time we demanded from ophthalmologists the same proof of their results that we receive from others. When one finds in recent publications "Weichselbaum's biscuit-shaped coccus" being described as surrounded by a clear space very much the same as that found between the organism proper and its containing capsule, or

when one sees a photograph of beautiful lanceolate diplococci described as meningococci the necessity for greater care in diagnosis will be readily seen. The finding of diplococci or "bodies in the tissues resembling the meningococcus" is not sufficient to warrant the statement that these were meningococci. The staining of Gram positive organisms in tissue is a simple procedure; on the other hand the staining of Gram negative bacteria, and especially the meningococcus, is a matter requiring special technique and very great care. If in staining tissue by one of the ordinary methods, diplococci are found, we may be sure they are not Gram negative organisms. For obvious reasons Gram negative bacteria will not be stained by such methods. Duval has recently described a method of staining Gram negative organisms in tissues. I have seen some very pretty slides showing gonococci stained in the tissues and would advise its use for the meningococcus, but the latter organism will be found even harder to stain than the gonococcus. The demonstration of Gram negative diplococci in smears, especially in eye bacteriology, is not sufficient to name the organism. Only lately I obtained upon three occasions the micrococcus catarrhalis from inflamed conditions of the conjunctiva. In the smears they were intra and extracellular, and without cultivation would have been diagnosed gonococci, so that to differentiate the Gram negative diplococci of the conjunctiva, even in cases of epidemic meningitis, a study of the cultural features of the organism is necessary.

Conjunctivitis as a complication of epidemic cerebro-spinal meningitis has long been recognized. Among 111 cases of meningitis Councilman saw ten complicated with conjunctivitis, among 30 Davis saw eight with the same complication. Robinson stated purulent conjunctivitis was a not infrequent complication of meningitis, but unfortunately the bacteriological examination was not often reported. Ballantyne in a paper on "Ocular symptoms in cerebro-spinal meningitis" stated hyperæmia of the bulbar and palpable conjunctiva occurred in many cases. A certain degree of bulbar injection is quite common even in the first few days and may persist for some time. Among the 73 cases examined, 13 had acute catarrhal conjunctivitis with more or less purulent discharge. In the majority it was a symptom of the early acute stage, but in several appeared in late stages and might well have been due to outward infection from the incomplete closure of the lids. No attempt was made to work out the bacteriology of the discharge. In two cases conjunctival hæmorrhages were present. McGregor, who mentioned this symptom to Ballantyne, saw conjunctival hæmorrhages quite frequently in the earlier cases of the Glasgow epidemic. They were usually during

the acute stage and even in the absence of such spots on the skin. They go so far as to suggest, (1) as conjunctival hæmorrhages are rare in acute illnesses except whooping cough, their presence in a patient suspected should carry some weight; and (2) conjunctivitis which occurs as an early symptom would most likely help to distinguish this from other forms of meningitis.

The fact that the meningogoccus has been isolated from the conjunctival discharge in a few cases has added interest to conjunctivitis as a symptom. According to Axenfeld, Frankel reported a severe pseudo-membranous conjunctivitis in three children of one family due to a diplococcus which he thought was the meningococcus. Hagland also described a case of meningococcus conjunctivitis. Both these cases are now discredited. Wintersteiner reported a case of ophthalmia occurring in the course of a meningitis. In cover-slip preparations from the conjunctiva an organism identical in morphology with the meningococcus was obtained. Weichselbaum studied Wintersteiner's preparations, and although no cultures were made he considered the finding positive. Wintersteiner believed the infection a metastatic one. According to Axenfeld, Koplick, in Washington in 1904, reported finding the meningococcus in the conjunctival sac in a case of epidemic meningitis. D. Smith, in the Archives of Ophthalmology, reported among 100 cases of conjunctivitis one due to the meningococcus. No differential diagnosis, however, was given. Gabrielides in a child of twenty-five months with meningitis found in the conjunctiva, xerosis bacilli, pneumococci and Gram negative diplococci, intra and extracellular, which coincided in every way with the Gram negative diplococci from the cerebro-spinal fluid. E. S. Thompson, at the American Medical Association, 1906, reported finding the meningococcus three or four times among 400 cases of blenorrhœa. Differentiation here is, however, unsatisfactory. Robinson from one case of meningitis isolated the meningococcus from the purulent discharge. In three other cases of conjunctivitis the finding was negative. In spite of these reports at a meeting of the Ophthalomological Society of Paris, Dec. 31, 1907, when Moissonnier reported a case of meningococcus conjunctivitis, Morax said "as yet there has been no authentic case of meningococcus conjunctivitis reported. The case reported by Moissonnier is neither clinically nor bacteriologically satisfactory."

During the last year I have had an opportunity of seeing six cases of epidemic meningitis with conjunctival symptoms: (1) an adult male aged 23 years. Marked catarrhal conjunctivitis smear negative. Culture staphylococcus aureus (in pure culture). (2) An adult male aged

18 years. Purulent conjunctivitis both eyes. Smear negative. Culture meningococcus.

(3) Child aged 3 years. Catarrhal conjunctivitis both eyes. Smear Gram negative diplococci. Culture bacillus influenzæ.

(4) Child 7 years. Catarrhal conjunctivitis both eyes. Smear Gram negative diplococci. Culture meningococci.

(5) Child aged 7. Catarrhal conjunctivitis both eyes. Smear Gram negative diplococci and Gram negative diplobacilli. Culture diplobacilli and B. xerosis.

(6) Child aged 9. Sister to case 5. Catarrhal conjunctivitis both eyes. Smear Gram positive cocci and Gram negative bacilli. Culture staphylococcus albus and bacillus influenzæ. In each case the diagnosis was made by cultural tests. In cases 3 and 5, although characteristic Gram negative diplococci were found in the smear preparation, the conjunctivitis has been placed as due to the organisms cultivated. In all the cases the conjunctivitis was in the early stage of the disease. In only one case was there much purulent discharge, this was strangely enough one of the meningococcus cases. In all the meningococcus was cultivated from the cerebro-spinal fluid.

The diagnosis of conjunctivitis due to the staphylococcus, diplobacillus and the bacillus influenzæ is a simple matter, but not so with the meningococcus. The latter can only be diagnosed by careful cultural examination. All Gram negative diplococci in conjunctivitis in meningitis cases are not meningococci, as from Axenfeld's clinic last year was reported the finding of the micrococcus catarrhalis from a conjunctivitis in a patient with meningitis. Leaving out of consideration the Gram negative diplococci described by Bumm and those of Lingelsheim, the three Gram negative diplococci to be discussed in differentiating conjunctival micro-organisms are the gonococcus, the meningococcus and the micrococcus catarrhalis. The differentiation between these three has been carried out in our cases by a comparison of the following points: Growth by room temperature, growth on plain agar, hæmoglobin agar, gelatine, Loeffler's blood-serum, potato, bouillon, Litmus milk, a comparison of their action on the sugars and a comparison of their length of viability.

Where Gram negative diplococci grow by room temperature and are viable on plain agar for weeks or months,the gonococcus and the meningococcus are excluded. The micrococcus catarrhalis is so easily differentiated the question comes to be really a decision between the gonococcus and the meningococcus. In the initial tube a growth of the meningococcus upon plain agar is not rare, whereas a growth of the gonococcus upon this medium is. Upon hæmoglobin agar they each

have a characteristic appearance which is constant. The meningococcus grows profusely with a large raised growth which has somewhat of a bluish tinge. The gonococcus, on the other hand, has a fine, slightly raised, moist-looking colourless growth vastly different in appearance. After considerable experience with the cultivation of different cultures of these two micro-organism, I feel convinced the most satisfactory medium lor their cultivation is human hæmoglobin agar. They each grow profusely upon this, and I believe the appearance of each upon this medium will help to a considerable extent in their differentiation. Upon gelatine they do not as a rule grow. Upon blood-serum the meningococcus grows fairly well, while the gonococcus does not. Upon potato the meningococcus grows at times, the gonococcus never. In bouillon the meningococcus grows with turbidity of the medium, the gonococcus does not grow. In Litmus milk the meningococcus sometimes gives a slight growth, the gonococcus never. On the sugars the meningococcus ferments maltose and dextrose, while the gonococcus only the dextrose. The period of viability is much less in the gonococcus than in the gonococcus. To insure cultivation the gonococcus must be transplanted every 48 hours. With this precaution very frequently the culture will be lost. The gonococcus, however, can be carried along very nicely by transferring every 48 hours, and after cultivation for sometime transplanting may be deferred for a day or two longer. These are some points noted during the last year while having the gonococcus and the meningococcus in different strains under constant cultivation. The strains differ in detail, but the gonococcus and the meningococcus when their cultural features are compared, give ample ground for differentiation.

The first report of meningococcus from the conjunctival sac of a patient not ill with meningitis was from Axenfeld's clinic by Brons. The case was one of Keratomalacia from pneumococcus infection. From the conjunctiva for a period of two weeks were isolated meningococci. The third case of meningococcus from the conjunctival sac which I have to report is the isolation from an apparently normal eye. A young Jewish boy, number 279, 1908, came to the out-door last February to have his eyes tested for glasses. As I was examining a series of normal conjunctivæ at that time, I chose his conjunctiva to take cultures from. Tubes of hæmoglobin agar, bouillon and plain agar were inoculated. The growth on hæmoglobin agar was profuse, so much so I believed it to be micrococcus catarrhalis, but in putting it through the tests given above I proved it to be the meningococcus. This, I believe, is the first instance reported of the cultivation of the meningococcus from a normal eye.

While the cultivation of the meningococcus from the conjunctiva of patients ill with meningitis is interesting, the cultivation from a normal conjunctiva is even more so. The presence of the meningococcus on the nasal mucous membrane of supposed healthy individuals has been shown. Is the presence on the conjunctiva secondary to its presence in the nose, or may the conjunctiva, too, be a point of entrance?

Briefly, then, during the last year we have seen at the Montreal General Hospital seven cases of epidemic cerebro-spinal meningitis with ocular symptoms. These seven cases consisted of one case of metastatic ophthalmia and six cases of conjunctivitis. From the pus in the anterior chamber of the hypopyon iritis case and from the conjunctiva in two cases of conjunctivitis were cultivated Gram negative diplococci which were carefully studied and shown to be meningococci. To this is to be added the cultivation of the meningococcus once from the normal conjunctival sac.

I take great pleasure in expressing my thanks to Dr. Duval for his supervision of this work.

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CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

BY

FRANCIS J. SHEPHERD, M.D., LL.D., F.R.C.S.E. (Hon). etc.

This affection has been little noticed until within the past ten years. Cautley in 1898, could only collect 17 cases; in 1902 with Mr. Dent, he reported 50 cases and in 1906 at the British Medical Association Meeting

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at Toronto, Dr. Cautley said that there were between 100 and 150 cases scattered through the literature of recent years,—he himself had seen 16 cases.

These cases have been often overlooked and it is only recently that physicians have become alive to the existence of congenital pyloric stenosis. The child is born, as a rule, perfectly healthy and symptoms may come on a few hours after birth, or a few weeks or even months. The perfectly healthy baby may gain weight and do well for a week or two and then begin vomiting,—at least this is the symptom which first attracts attention,—though there may have been a disinclination for food sometime before.

The vomiting is characteristic; it is more a forcible ejection of milk from the stomach than vomiting. As soon as the stomach is distended with milk, it may be with one or two feedings, the contents are forcibly shot out of the mouth and nostrils. There is relief as soon as the stomach is emptied and the child has no nausea and is ready to commence feeding again with the same result. There is no bile in the vomit but there may be mucus from gastric catarrh.

The obstruction may not be complete at first and thin food may pass through, but sooner or later, the obstruction becomes complete, the bowels are constantly constipated and emaciation rapidly sets in. In these cases peristalsis is readily seen and a tumour can be felt in the region of the pylorus, midway between the costal margin of the right side and the umbilicus. There is often also dilatation of the stomach.

The symptoms then of this affection are, according to Cautley, the characteristic vomiting, wasting, constipation, visible peristalsis, dilatation of the stomach, and a tumour. The pyloric tumour is due to an enormous hypertrophy of the circular fibres to the size of "the last joint of the little finger of a female," or about the size and consistency of a thick rubber ring used for holding an umbrella closed. It is usually white and bloodless looking like fibrous tissue. The folding of the mucous membrane is the chief cause of the obstruction.

Cases of pyloric spasm may be mistaken for this affection. Here we have not the same kind of vomiting and the peristalsis is absent, as is also ditatation of the stomach and persistent constipation. In spasm the baby never retains one or two feedings.

All cases of the severe forms of stenosis if not operated on die. Mr. Dent had operated on nine cases by pyloroplasty in 1906 with the result that all the private cases, four in number, got well and of the five public cases three died within two months and one of summer diarrhœa three months after operation. Only one made a permanent recovery.

Mr. Harold Stiles of Edinburgh reports ten cases operated on by gastro-enterostomy and one by pyloroplasty. Of the ten cases five recovered, but two subsequently died of enteritis.

The pyloroplasty case died 17 hours after operation, the infolded edges of the wound blocking the opening. So in these eleven cases only three recovered.

In connection with this affection the following case operated on by me is interesting:—

E.E., born a strong healthy baby, began to vomit about the end of the second week after birth. The vomiting was characteristic, after several feedings the contents of the stomach would be ejected violently through the mouth and as this was not followed by nausea the infant would again be ready to take the breast with avidity. There was constipation and rapid loss of flesh. Soon peristalsis developed and a tumour could be felt in the region of the pylorus. I first saw the baby on November 28th, 1907, when 26 days old. There was emaciation, marked peristalsis and a definite pyloric tumour. Medical treatment had been without avail and as the vomiting continued unabated I advised immediate operation. This was performed on November 29th, chloroform administered and an incision not much over one inch in length was made above the umbilicus and the stomach pulled out with the duodenum. It was then seen that there was an enormously hypertrophied pyloric muscle which felt hard and inelastic and formed a complete ring, larger somewhat than those rubber rings used to hold the ends of the ribs of an umbrella together. Pyloroplasty was immediately decided upon and an incision made in the long axis of the stomach and bowel, cutting through this tough, fibrous-looking ring. The incision was of some length going up well into the stomach and down through the walls of the duodenum. Some mucous membrane on each side of the incision into the stomach was seen to fall inwards and this was cut off with scissors.

The attempt was now made in the usual way to pull the middle parts of the incision (at the ring) upwards and downwards, but it was found that a large gap was left in the upper and lower angles owing to the thickness and inelasticity of the pyloric muscle. So this obstruction was cut freely away, as suggested by Mr. Dent, until the angles could be approximated. The opening was now quickly closed with a single row of Lembert sutures, the stomach replaced and the abdominal wound closed with through and through sutures. The whole operation took but a short time, which is an important point in very young children.

The after treatment was attended to by a special nurse, and this after treatment, let me remark, is quite as important as the operation. The

baby was somewhat collapsed after the operation and cried much on recovery from the anæsthetic. A nutritive enema was immediately given, consisting of peptonized milk ℥i, and brandy 10 drops. This was repeated every three hours and was retained. In addition to this weak whiskey and water was given by the mouth which was eagerly taken and retained. The next day about 10 o'clock after the nutritive enema the child vomited some old blood and this went on most of the day. A well digested stool was passed and considerable flatus which much relieved the child.

The enemata were kept up for two days and then the baby was nursed by the mother at short intervals, a minute at a time and increased by the fourth day to four minutes every two hours. From this time the child progressed favourably and left hospital on the 8th day after operation and rapidly increasing in weight. The temperature went up to 102.5° after operation and then become normal; pulse, after operation, 130, went down below 100 at time of leaving hospital. When operated on the baby weighed 7lbs. 5oz., on the third day this had decreased to 7lbs. 2½oz., by the fifth day it had increased to 7lbs. 6oz., and when leaving the hospital weighed 7lbs. 10oz. After this the weight increased very rapidly and now the boy is a strong healthy child, very sturdy, aged 19 months and weighing 30lbs.

There are three operations which have been performed for this affection:

1. Loreta's operation, or divulsion of the pylorus, which is now but seldom practised.
2. Gastro-enterostomy.
3. Pyloroplasty.

Both the latter operations have vigorous advocates.

Gastro-enterostomy has been much more frequently performed and has a strong friend in Mr. Harold Stiles of Edinburgh, who has performed it some dozen times with about 50 per cent of recoveries, though some of those died afterwards from acute enteritis. Mr. Dent had performed the same number of pyloro-plasties with much the same result, though all his private recovered and but 20 per cent of the hospital ones, this no doubt was owing to the fact that the hospital cases were not operated on early enough.

It seems to me that pyloroplasty is the ideal operation, as none of the gut is side-tracked and the operation is not so prolonged or difficult, though many think otherwise. The objection urged against pyloroplasty is that the pyloric passage may become blocked by the infolding of the edges of the wound and the swelling of the cut mucous membrane.

This has happened to Mr. Stiles, Mr. Campbell and Mr. Rutherford Morison,—but in all their operations the wound was closed by a double row of sutures. Now Mr. Dent uses only one row of sutures and this is quite feasible if the pyloric ring be cut away sufficiently before attempting to close the opening. I think also trimming the mucous membrane is a very important part of the operation and still further tends to prevent closure of the pyloric opening after operation.

A small abdominal incision is also advantageous and tends to prevent subsequent hernia which has occurred in some cases soon after operation. Through and through sutures are better for the thin wall of an infant's abdomen and is also a much more speedy process.

NOTE.—I saw this child the last week of November, 1908. I found him in splendid condition and nearly two years old.

PORTAL INFECTION ORIGINATING IN APPENDICITIS.

BY

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Pylephlebitis or septic infection of the portal vein, has its origin in suppurative cholecystitis or cholangitis, ulceration of the stomach or intestines, perivisceral and omental suppuration, and suppuration in or about the spleen, pancreas and kidney or any organ within the ramifications of the portal system.

(No form of systemic (pyæmic) infection of the liver or portal vein is included in this communication.)

Following upon infection of some of the smaller branches of the portal vein are suppurative thrombosis of the veins, septic emboli and multiple abscesses of the liver. No matter how produced, such a condition, when once developed, is, with our present resources, except in some very rare cases, entirely beyond the reach of medical or surgical treatment and is inevitably, but generally not rapidly, fatal. Some recent experiences have directed my attention anew to this subject and have confirmed me in the opinion which I have long held, that by far the commonest cause of pylephlebitis is the diseased appendix vermiformis. The autopsy records of the Royal Victoria Hospital show fourteen cases of pylephlebitis during a period of fourteen years and a few months, since the hospital was opened for the reception of patients, in 1894. To these I have added one case in which the condition was sufficiently demonstrated at operation. Of these fifteen cases, eight were definitely traced to the appendix, one was due to a calculous pyonephrosis, two

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were due to cholecystitis and cholangitis; one, recorded as obscure was not traced; one was due to glanders, and one also recorded as obscure, had its origin in the upper zone of the abdomen or possibly in the mediastinum, and one was due to general peritonitis from suppurative salpingitis.

Of these eight appendix cases, seven were operated upon; four definitly for appendicitis, although in one of the four pylephlebitis had also been diagnosed; and three in which operation was undertaken with the idea that the source of the mischief was to be found in the gall bladder or bile ducts. In two of these latter cases the appendix was removed and in the other it was not examined at the time of operation, but the appendicitis was discovered at autopsy.

To make this record more complete, I may add that in the same period of time (fourteen years), 1726 cases of appendicitis were treated in the Royal Victoria Hospital, of which 1480 were operated upon.

The following are brief extracts from the reports of the cases:—

Case I.—W. S., male, aged 20, was admitted to the Royal Victoria Hospital, November 30th, 1896, complaining of cramps in the stomach, headache, and pain in the back. His illness had begun eight days previously although he had only been four days in bed; he had never had any similar attacks. He was admitted to the Medical side and typhoid fever was suspected, although no evidence of it was discovered. His temperature was 101, pulse 116, respirations 24. There was a slightly licteroid condition of the conjunctivæ; the abdomen was full and slightly distended, but there was no rigidity nor no tenderness. On the twelfth he had a chill lasting about eight minutes. He developed some general abdominal tenderness but no localized pain could be made out. He was transferred to the Surgical ward on the night of the fourteenth. He was delirious and weak and was not operated upon. He died at 2.15 p.m. on the sixteenth. The autopsy showed "Peri-appendicitis," thrombosis of the mesenteric vessels, abscesses of the mesentery, acute suppurative pylephlebitis and multiple abscesses of the liver.

Case II.—S. C., male, aged 26, was admitted to the hospital on the fifth of June, complaining of pain in the abdomen, vomiting, and constipation. He had been seized with severe abdominal pain on the seventh of May. It came on suddenly and was most marked in the upper zones of the abdomen. He partially recovered from this and had a return on the fourteenth of May, marked by constipation, vomiting and hiccough. He had no jaundice but the skin was of a dull sallow colour. The abdomen was opened in the gall bladder region, June 7th. The gall bladder, bile ducts and pancreas were found to be

normal. A fluctuating mass was discovered in the neighbourhood of the appendix which proved to be an abscess and was drained. He died on the ninth of June. Autopsy showed appendectomy (for acute gangrenous appendicitis), acute suppurative peritonitis, suppuration of mesenteric glands, thrombosis of mesenteric veins, septic pylephlebitis and multiple abscesses of the liver.

Case III.—A. G., male, aged 22, was admitted October 8th, 1898, complaining of pain in the abdomen with vomiting. The illness had begun with severe general abdominal pain and vomiting on October 5th. It had subsided somewhat but had not disappeared; there was no history of previous abdominal pain; temperature 99², pulse 100, respirations 22; the abdomen was full, and there was general rigidity most marked in the right lower quadrant. An indefinite tender mass could be felt external to the colon. He was oprated upon at 1 p.m. October eighth A gangrenous appendix was removed and drainage was established from the operation wound and also in the right loin, and the left iliac region. The patient died on October 13th. Autopsy showed appendectomy, general peritonitis, pylephlebitis, cloudy swelling of the heart and kidney, thrombosis of mesenteric and portal veins and an early condition of multiple hepatic abscesses.

Case IV.—J. McD., male, aged 19, was admitted in the evening of November 19th, 1898, complaining of pain in the abdomen and lumbar region. Illness had begun on November fourteenth with severe cramp-like pains in the lower zone of the abdomen, vomiting followed, no chills, temperature 100, pulse 100, respirations 24. The abdomen was slightly distended, hard but not rigid, slight fulness in epigastrium, no palpable mass, tenderness throughout the abdomen but most tender just above and to the left of the umbilicus. Operation for appendicitis on November twentieth. Appendix found lying in an abscess cavity in the pelvis, very slightly walled off, the cavity containing very fetid pus. The appendix was horse-shoe shaped and attached to the head of the cæcum by old adhesions. The terminal part was completely sloughed off. The patient's condition was not materially improved and he died at 5 a.m. November 23rd. Autopsy showed appendectomy, acute generalized purulent pleuritis, acute enteritis, thrombosis of portal veins and pylephlebitis, early stage of multiple abscesses of the liver.

Case V.—A. B., male, aged 14, was admitted April 1st, 1901, complaining of pain in right lower quadrant of abdomen with tenderness and vomiting. The illness had begun on March 30th with sudden pain in the epigastrium which soon became general all over the abdomen. A diagnosis was made of typical appendicitis. Operation, April 1st.

Appendix was found lying in front of cæcum wrapped around completely by the omentum. Two kinks in the proximal end of the appendix where it was acutely bent upon itself; distal end much enlarged and gangrenous; the surrounding omentum and appendix were removed. In passing a McEwan needle through the thickened meso-appendix, a small abscess in its substance was opened up. Patient was reported as doing well until the tenth, a period of seven days, when he had a chill. Repeated chills followed, icteroid appearance and bile in the urine; death, at 6.30 a.m. on the 24th of April. Autopsy showed appendectomy, septic thrombo-phlebitis of the portal vein, multiple abscesses of the liver, abscesses of the spleen.

Case VI.—R. R., male, aged 37, was admitted January 31st, 1902, complaining of jaundice, tenderness over gall bladder region and frequent chills. Illness had begun on the 23rd of January with slight pain in the stomach, with elevation of temperature and drowsiness. He had had no other pain except some griping when the bowels moved. The first chill had occurred on the 26th and jaundice appeared about the same time. Since then he had one or two chills every 24 hours. He had had rheumatism at ten years of age, gonorrhœa in youth, syphilis thirteen years before and typhoid fever ten years before admission, but no other illness. Temperature 98⁴, pulse 92, respirations 28. Soon after admission, he had a severe chill and the temperature rose to 105.1 and was followed by free perspiration. The patient was a stout man, the abdomen was somewhat distended and slightly tender over the gall bladder and the liver region. The liver was palpable below the costal border. A diagnosis of septic condition of the liver and gall passages was made and operation was performed on February 3rd. No lesion of the gall bladder or bile ducts was found. The liver was somewhat swollen and œdematous, the head of the pancreas was enlarged and hard. The appendix was not examined and no other lesion was found. The abdominal wound was closed. The condition remained unchanged. The patient grew gradually weaker and died on February 15th. Autopsy discovered peri-appendicitis with abscess, pylephlebitis, thrombosis of all the superior mesenteric veins and radicals of the portal vein in liver and pancreas with multiple abscesses in both. There was also an acute definitely enclosed small peri-appendical abscess.

Case VII.—M. C. K., male, aged 40, was admitted August 2nd, 1907, complaining of pain in the abdomen and back, vomiting and chills. Patient was in good health until July 27th, when he was seized with severe diarrhœa. On the 30th he began to have cramps in the abdomen and vomiting. He had constant dull pain in the back and head. On

the 30th, he had two distinct chills and he had tenderness over the abdomen. He had suffered from malaria eight years previously and also from rheumatism and sciatica. There had been no previous attack of abdominal pain and no previous jaundice. He was a stout man, the abdomen was somewhat distended and he had an icteroid appearance, but there was no jaundice, the urine contained albumen. The diagnosis was made of appendicitis with secondary pylephlebitis. The appendix was removed on the eighth day of August. It was gangrenous and enclosed in a firm walled cavity. The patient's condition seemed better for a short time afterwards but the chills continued, jaundice developed and increased, and he died September fifth. Autopsy discovered septic thrombosis of splenic, pancreatic, mesenteric and other veins of the portal system and multiple abscesses of the omentum and liver.

Case VIII.—Mrs. S. S., aged 55, was admitted May 26th, 1908, complaining of abdominal pain, distension and jaundice. Her illness had begun on the night of the eighth of May with severe crampy pain in the upper zone of the abdomen without fever, which lasted for three or four days necessitating the use of morphia and which had been diagnosed as biliary colic. A palpable tender mass was also discovered in the region of the gall bladder at this time. Jaundice developed, and on the fifteenth of May, she began to have chills, one or two every day, followed by high fever and perspirations. She was immediately operated upon (May 26th), the diagnosis being some septic condition about the liver and bile passages probably due to suppurative cholecystitis. On opening the abdomen, there was no free fluid nor lymph, the gall bladder and bile passages were normal; on passing the fingers into the Foramen of Winslow, a very marked thrill could be felt in the portal vein on the slightest pressure. The head of the pancreas was enlarged and hard, but no fat necrosis was visible. The posterior border of the liver was hard and swollen, but no other evidence of disease could be discovered until the cæcum was exposed. The appendix was found bound down over the cæcum, forming part of the wall of an abscess which lay between the layers of the mesocolon. This abscess was small and its walls were ulcerated and bleeding, the bleeding being arrested with difficulty. The wound was closed and a drainage tube inserted down to the abscess cavity at the lower angle of the wound. The patient remained for about 40 hours in excellent condition without fever and feeling well. Since then the chills have returned and there is no improvement in her condition. The subsequent history of the patient is given in the following letter from Dr. W. A. Brown, dated November 6th, 1908:

"Mrs. S. died on Oct. 26th. During the time she was at home (since June 26th, I think) she was fairly comfortable most of the time.

Had a couple of slight chills during the first three weeks but none afterward. About every ten days or so she would get restless spells with some fever 100° to 101° and a good deal of mental disturbance, crying spells and delirium, with always slight jaundice. These attacks would last two or three days, when she would become brighter, appetite would return and she would be fairly well again with normal temperature and pulse about 100.

There was always great distention of the abdomen, with a hard swelling in the epigastric region and in left flank—apparently the spleen. No pain except when bowels moved.

There was very little change in her condition during the whole four months. Four days before death, however, an abscess suddenly appeared at the lower angle of the operative scar. This was opened and about half a pint of fetid pus escaped, and it drained freely until her death. It evidently came from a distance. During the last four days the enlargement of the abdomen markedly decreased. With its subsidence, quite an enlargement of the womb could be felt. (You remember you remarked at the time of the operation that there was present some growth in connection with the uterus).

With the advent of the abcess, she showed marked mental hebitude, gradually developing into stupor, with paralysis of right arm and leg and pupil. Had to be catheterized. Stupor rapidly deepened. Could not swallow. Twenty-four hours before death had a severe convulsion, another in a couple of hours and then more frequently until death, towards the last occurring every few minutes. The convulsive movements always occurred first in the eye muscles, causing the eyes to jerk rapidly from left to right, and then become general.

I was very sorry that I could not obtain a post mortem examination. I felt sure there would have been no objection, but it could not be managed. Yours sincerely,

(Signed). W. A. Brown.

P.S. There was not as much wasting during the four months as one would expect, as between her bad spells she took a considerable amount of nourishment. W. A. B."

In all these cases, the clinical picture was at the outset obscure and atypical. In only three cases was a definite diagnosis of appendicitis made at a comparatively early period of the illness (from two to five days); in the fourth case, the patient came to hospital on the sixth day of his illness, when a diagnosis of appendicitis and also pylephlebitis was made, and in the other three cases, the appendicitis developed very irregularly and was marked by the symptoms of pylephlebitis when

the patient first came under observation in the Hospital. These three patients came into hospital in from eight days to four weeks after the onset of the illness. In all of the cases, pylephlebitis developed early. There were definite signs within from two days to a week. Severe chills with high fever was a marked and early symptom in six of the eight cases. In the other two cases there were no chills, although there was moderate fever. The unusual symptoms were pain in the back, headache, and indefiniteness in the localizing signs. The initial attack of crampy pain in the abdomen was mistaken for biliary colic in several of the cases. In five of the eight cases the appendical abscess was small and firmly enclosed between the adherent appendix and the cæcum. In one it was firmly wrapped up in omentum, and in the other two the limiting boundaries had given way. In all the cases, the walls of the abscess cavity were ulcerated. An icteroid appearance was an early symptom, although definite jaundice with bile in the urine was not an early development. In four of the eight cases, there had been previous attacks of abdominal pain. In the last case reported, most interesting observations were made at the operation. The gall bladder and ducts were normal. The posterior part of the liver and the head of the pancreas were hard and swollen, and on passing the fingers into the Foramen of Winslow, a very remarkable thrill was felt on the slightest pressure. This was, I believe, due to the presence of thrombi in the vein. There was no free fluid nor lymph in the general peritoneal cavity and no sign of fat necrosis. In cases seven and eight, a remarkable improvement in the general condition followed operation, although the pylephlebitis was far advanced in both. The improvement, however, only lasted for a couple of days. The lesson conveyed by these cases is, of course, to make an early diagnosis and operate early before portal infection has been established, but it is just in these obscure onsets that one is tempted to wait for further information before opening the abdomen.

The rule here should be, as in most conditions "when in doubt, operate." It occurs to me also that perhaps in a very early condition of an already established progressive thrombosis, removal of the primary cause and consequent improvement in the general condition might arrest the progress and overcome the mischief.

No attempt has been made to study exhaustively the literature of this subject, but the following quotations may be given, as they bear directly upon the frequency with which pylephlebitis occurs as a complication of appendicitis.

Fitz, in a paper published in the "Transactions of the Association of American Physicians," in 1886, on "Perforating Inflammation of the

Vermiform Appendix," says:—"Among 257 cases of perforating appendicitis, are eleven of pylephlebitis." These cases were presumably from autopsy records and the date was before the era of the surgical treatment of appendicitis. This was, in fact, an historic paper which had much to do with the adoption of operative treatment for appendicitis.

J. H. Bryant, in a paper entitled "Suppurative Pylephlebitis," and published in Guy's Hospital Reports, Vol. 14, for the year 1900, analyses twenty cases, of which eight were due to appendicitis.

Gerster, in the New York Medical Record, Vol. 63, in a paper entitled "Septic Thrombosis of the Portal Vein in Appendicitis and on Pylephlebitis, together with some Remarks on Peritoneal Sepsis," says that of 1189 cases of appendicitis operated upon in the Mount Sinai Hospital in ten years (1892 to 1902), pylephlebitis was seen only nine times.

THE TREATMENT OF POTTS' DISEASE OF THE LUMBAR VERTEBRÆ.

BY

A. MACKENZIE FORBES,

Surgeon to the Children's Memorial Hospital; Demonstrator of Orthopædic Surgery, McGill University, Montreal.

If we realize that the position of a tuberculosis lesion of the spine is usually situated at the anterior part of the body of a vertebra adjacent to and perhaps including an intervertebral disc, we will agree that treatment should provide, amongst other things, in this as in all tuberculous lesions of the joints, rest by immobilization of the bones forming the joint.

Rest is best secured by the use of some form of plaster jacket, spica, or bed, or by a special or other brace. Some of these forms of support necessitate the recumbent position. All of them may be used with advantage in that position.

Our choice of which particular way or means should be adopted to secure the essential rest should, at present, be guided by the condition of our patient, especially as to whether he suffers from or is threatened with abscess, or flexion of one or both thighs due to psoas contraction.

The theories of the action of a plaster jacket as ordinarily applied for disease in the lumbar region are:—

(1) It is said by some to act from the pelvis as a brace which supports the weight of the trunk, head and upper extremities.

(2) It is said by the majority of surgeons to act as a splint.

Practically a jacket can hardly be expected to support the weight of the parts above the pelvis. It would have to fit too snugly to do so, and

Read at the Medico-Chirurgical Society, Montreal.

in the majority of persons, the pelvis would give too insecure a foundation.

In the mid-regions of the spine, a jacket will act as a secure splint, but in the cervical and dorsal regions, its action, as an efficient splint, is open to question. This has been demonstrated practically with the result that on this continent, a spica is a common form of treatment of Potts' disease of the lumbar region in all stages of this affection, and in England a double Thomas hip splint is frequently used for the same conditions.

If the giving of rest is the fundamental principle of the mechanical treatment of Pott's disease and we are convinced that the advantages of the application of a jacket as ordinarily used and even a spinal brace are open to question, perhaps it may be of benefit to consider the anatomical peculiarities of the lumbar spine in order to ascertain how rest may be best secured in those patients where it is deemed inadvisable to insist upon recumbency, and also as an adjunct to treatment by recumbency. The normal position of the lumbar spine is one of lordosis.

The intervertebral discs between the lumbar vertebræ are larger than in any other region thus,—the movement possible between the bony segments of the lumbar region is greater than in any other region, with perhaps, the exception of the cervical region. The experiments of Lovett have demonstrated that hyper-extension limits rotation in the lumbar region and that rotation and lateralization go hand in hand.

With these anatomical facts before us, the position of hyper-extension seems to be worthy of our consideration as an attitude to be desired in the treatment of this affection, as in this position the anterior parts of the articular surfaces of the bodies of the vertebræ (the parts perhaps first affected with tuberculous disease) are widely separated, thus preventing attrition, and the body weight is forced on the lateral masses and rotation and lateralization are restricted.

In children the hyper-extended position is easily attained and maintained by the application of a plaster jacket, applied in much the following way:—

The patient, facing the back of a low chair, is instructed to firmly grasp it. A nurse then grasps the child's hands and secures them in this position. An attendant then raises the patient's feet from behind until the lower extremities assume a position almost at right angles to the trunk. In this position of hyper-extension of the lumbar spine, a plaster jacket is applied into which are incorporated strips of iron to assure the retention of the position now secured.

This method of treatment is not advocated for all patients suffering from Potts' Disease of the lumbar region. In some, because of psoas

contraction, we may control the lower extremities by a splint or spica. I would, however, draw your attention to the fact that hyper-extension of the spine must naturally control spasm of these muscles, although in a different manner from that ordinarily recommended.

In closing I may say that this attitude of hyper-extension may be attained in much the same way, although neither in such extreme nor so securely maintained by the use of a flexed Bradford frame or a plaster-bed. It may be secured also, but in even a less marked manner, by the use of a double Thomas hip splint.

Where psoas contraction is marked, one of these methods may be used for early treatment.

Local treatment should, of course, be used conjointly with general measures, including fresh air and general rest.

The second meeting of the International Association of Medical Museums was held in the building of the National Museum at Washington, D.C., on October 1st and 2nd, in connection with the International Tuberculosis Congress. The chair was taken by Professor W. G. MacCallum (Baltimore), who was appointed President; Professor G. Sims Woodhead was elected First Vice-President; Professor J. Ritchie of Edinburgh, Scotland, Second Vive-President; and Professor Aschoff of Freiburg, Germany, Third Vice-President. Dr. M. E. Abbott, of McGill University, Montreal, was appointed Secretary-Treasurer. The meeting was attended by a large number of American pathologists, and several foreign members were also present—Professor Woodhead (Cambridge), Professor Fibiger (Copenhagen), Professor Rist (Paris), Professor Harbitz (Christiania), Dr. Miller (Birmingham), Professor Courmont (Lyons), etc. The death of the first president, Dr. James Carroll of the Army Medical Museum (Washington), delayed the organization, which had been initiated at the first meeting. That organization having been completed, it was determined, upon the motion of Professor Warthin (Ann Arbor), seconded by Professor Fibiger, that a bulletin should be published periodically for the purpose of exchanging specimens and material between the associated museums. Papers were read by Mr. E. L. Judah, of Montreal, on the mounting of moist specimens; by Mr. Izzard, of Cambridge, England, on a rapid method of macerating bone, and by Professor Warthin on the closure of museum jars without the use of cement. Dr. Abbott demonstrated a series of specimens of anomalies of the heart from the Army Medical Museum, from McGill University, and from Johns Hopkins University and the Army Medical Museum, Washington.—From the *British Medical Journal*, October 24th, 1908.

THE

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A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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THE MISUSE OF SCIENCE

The November number of the *Ladies' Home Journal* contains eight columns of reading matter written by one John Corbin, detailing a medical case. The following paragraphs, headed "A Word in Explanation," appear over the signature, "The Editor of the Journal."

"Astonishing as is this case, and almost beyond human belief, the story is absolutely true, with every fact well authenticated. Mr. Corbin's writing of it is based on the published account of it, a book of five hundred and sixty pages called "The Dissociation of a Personality," and on personal interviews with the author, Doctor Morton Prince, under whose direction the amazing case passed and developed.

Doctor Prince is one of the most eminent physicians in Boston; is Professor of Diseases of the Nervous System at Tufts College Medical School and Physician for Diseases of the Nervous System in the Boston City Hospital. The book just referred to, together with numerous contributions to scientific and medical journals, has given him a world-wide celebrity and placed America on a level with France in the science of abnormal psychology. Moreover, every feature of this astounding case, with a single exception, has been observed, though in a less complete and dramatic form, in other cases recorded by other physicians of the mind, American and European. The single exception is Sally's claim to have led an independent existence in Miss Beauchamp's body since infancy—

and this Doctor Prince records without vouching for its truth, though the probability of its truth is strong. It is only for the last few decades that such cases have been recognized by science; but they are now known to have existed for centuries—perhaps since the birth of man. Miss Beauchamp's idea that the people in the Bible "possessed of devils," were in the same plight as she was is in full accord with the latest verdicts of science. Many people who, for untold centuries, have been shut up to die as hopelessly insane might have been cured as Miss Beauchamp was cured if the true nature of their malady and the methods Doctor Prince used—those of hypnotism—had been understood."

The name "Miss Beauchamp," is, of course, a disguise. For obvious reasons her real name cannot be given, particularly as she is living to-day, happily married, her remarkable case known not even to her closest friends, only to her husband."

We think the publication thus of material such as this to be a grave error. From the fact that Dr. Prince's photograph appears on the first page of the article, and that the article was based on "personal interviews with the author, Dr. Morton Prince," we infer that, to say the least, the article was published with his knowledge and consent. If this be a correct inference, we consider that it is just as wrong to communicate the history of this case in a lay magazine, as it would be to tell any fact about the patient's physical conformation.

As far as the editor's standpoint is concerned, we have little to say, except that it seems to us just as delicate to publish a hospital case report of a case of cancer of the stomach as to make public this particular history.

With regard to the public, we venture to say that this has proved a popular article; it could not fail to appeal to many people, because they are being allowed behind the scenes, where they have no business to be; and their prurient curiosity is at least stimulated, if not satisfied, by occasional statements which are of the kind that would not ordinarily be told by one acquaintance or friend to another, but rather would be told by a patient to a physician with the knowledge that it would go no farther. We deny utterly the right of the public to hear or read such statesments, and confess that one's feelings on reading this article thus published, are much the same as if he were perusing a personal letter belonging to some one else. It may not be wrong, but it is in the worst possible taste.

Is any scientific purpose served? Not in the least. The subject of mental disease—and it may not occur to the public that this woman was

insane merely in an extraordinary manner—is so difficult a subject to the best trained alienist that there is frankly no hope of a dabbler ever learning anything about it, and the cause of public education is no more helped by such an article than it would be by a dissertation on the subject of intra-uterine deformities. Having themselves been born might be thought to give the public the right to ask to be enlightened on the latter, but we think the claim would be disallowed by any sane court.

Can any harm be done by such an article? We think it may. The average American (of the United States or Canada) of the classes who read *The Ladies' Home Journal,* has of late been paying as much attention to introspection as is good for him or her. We can imagine many young women seeing in some degree in their own minds parallels to the case here recited, and on the one hand, stimulating thereby tendencies to hysteria if not to insanity, and on the other hand, excusing acts by the supposition that they are in the grasp of a higher power, namely, the "multiple personality."

We can foresee that some will say that the spread of knowledge is the keynote of modern civilization; but need we, on that account, give our young laity a knowledge of, say, the para-syphilitic diseases? We feel strongly on this subject, and beg to say that we think the publication of this article in a journal, other than scientific, sets an example of bad taste: may we hope it will not set a fashion?

THE PASTEURIZATION OF MILK.

During the Tuberculosis Exhibition recently held, Miss Phillips of the Foundling and Baby Hospital, delivered an address upon, and a practical demonstration of the method of pasteurizing milk. In connection with this small beginning of a measure excellently preventive of disease, we note that the reports of this work in New York are interesting. The figures for the current year of the pasteurized milk supplied by the Nathan Straus Infant Milk Depots are before us; in this year, over four million bottles of pasteurized milk have been distributed, an increase of 37 per cent. over last year. This distribution began with 34,000 bottles in 1893, and its growth can mean only one thing, that it appeals to mothers as a safeguard for their children. Two thousand five hundred babies were benefited last year by these measures.

Pasteurization of milk has not its greatest work to do in the prevention of tuberculosis, but in lessening the amount of other infantile infections; it cannot take the place or obviate the necessity of strict in-

spection of dairies and milk supplies, but it is a tremendous factor in the production of safe milk, and, moreover, it is perhaps the measure that is most nearly within our reach in Montreal, because its use depends on personal effort and not upon municipal organization.

Reviews and Notices of Books.

GYNÆCOLOGY AND ABDOMINAL SURGERY, in two large octavos. Edited by HOWARD A. KELLY, M.D., Professor of Gynæcologic Surgery at Johns Hopkins University; and CHARLES P. NOBLE, M.D., Clinical Professor of Gynæcology at the Women's Medical College, Philadelphia. Profusely illustrated by Mr. Hermann Becker and Max Brödel. Philadelphia and London: W. B. Saunders & Co., 1908. Per volume: Cloth, $8.00 net. Canadian Agents, J. A. Carveth and Co., Limited, Toronto.

The second and last volume of this work has just appeared, the first volume having been published a little more than a year ago.

This work of Kelly and Noble is in several respects unique. In the first place, and as indicated by the title—Gynæcology and Abdominal Surgery—the authors have attempted to create new, and as they contend, more natural delimitations for the department of gynæcology, and have frankly and boldly demanded that all general abdominal surgery be added thereto. Again, the usual and somewhat stereotyped classifications of the ordinary text-book have been widely departed from.

This is not the place to discuss the wisdom of extending the field of gynæcology to include that of the whole abdomen. As in every other question, there are arguments for and against. These present volumes representing the first treatise in our literature, in which they are so united, will doubtless do much to establish the advancing claims of the gynæcologist.

Wide though these new boundaries are, the authors have nevertheless already transgressed them, for they have included in volume II a chapter of some 80 pages on Diseases of the Female Breast. We confess we fail to see the wisdom, in their theory or practice, of this inclusion in a treatise that professes to deal entirely with the pelvis and the abdomen, and we freely admit that such a wide overstepping of anatomical landmarks, not only gives pith and circumstance to the contention of the general surgeon of the grabbing tendencies of the specialist, but also nullifies the argument for the very existence of the specialty itself.

The new classification of the work in these volumes is, to say the least, practical. Occasonally, there is some over-lapping but the ease with

which information concerning any particular subject can be at once discovered thoroughly condones this textual duplication.

The work is in reality a series of monographs. Kelly and Noble, rather modestly as we think, are ascribed as editors of this work. Some idea of the generosity with which they have personally contributed, may be gathered from the fact that fifteen of these articles have been written by themselves.

Their fellow-contributors include some of the best known names in America, and Moynihan, of Leeds, the one non-American writer, has written an excellent article on "Operations upon the Stomach." A clear and succinct chapter on "Cæsarean and Porro-Cæsarean Section" is from the hand of J. F. W. Ross, of Toronto. For the greater part these articles or monographs are excellent. A special mention may be made of the chapter on "Bacteriology," by Ford, and of "Medico-Gynæcology," by Noble and Anspach. The chapter on "Pathology of the Reproductive Organs" is in reality a monograph, and one of the best that we have seen.

The preparation of this work has been in the minds of its editors for the past ten years. In every respect, it has been made practical and up-to-date. A wise selection has been made of operative methods, and these are well illustrated and clearly described. The authors have drawn liberally from their wide experience; to the student, the investigator and the surgeon, they clearly point out the way. The text is everywhere profusely illustrated, and the quality of these illustrations is sufficiently guaranteed by the names of Brödel and Becker.

We can confidently recommend the work. W. W. C.

Squint and Ocular Paralysis, by E. Lucas Hughes, M.R.C.S., Eng., L.R.C.P., London. H. K. Lewis, 1907

Mr. Hughes' admirable little book supplies a long felt want, not only to the ophthalmic surgeon, but more particularly to the general practitioner who requires a terse, yet intelligent explanation of these rather obscure subjects without having to refer to the more exhaustive treatises. The reader is at once impressed by the fact that the author's views have not been obtained from any one school, but that to his own extensive clinical experience, at home he has added the best information that he could gather from visits at the Continental clinics.

After reviewing the history of squint in a very interesting manner, the author defines binocular vision and shows how squint results from a non-development of the fusion sense in early childhood. The vital importance of the early recognition of squint is impressed upon the reader

and the various methods of correction are explained. Worth's amblyoscope and the diploscope, as more recently brought forward by Rémy, of Paris, are recommended as educative factors of unusual value. A matter of the greatest importance in the author's opinion, is obtaining an absolutely correct refraction under mydriasis. After this has been done and suitable glasses have been dispensed, education of the squinting eye by means of the various stereoscopes, or either of the instruments above noted, is recommended. Mr. Hughes is most emphatic in discouraging a great deal of the meddlesome operative interference at present in vogue by many who will not take the pains to see what results may first be obtained by educative means. The technique of the various tenotomies and the advancement operation as recommended by Worth, are described.

The author's knowledge of the anatomy of the orbit, with a number of original drawings, as well as his ability to refrain from exhaustive and elaborate definitions, make the section of ocular paralysis unusually readable. The physiological action of the muscles, separately and combined, is tersely explained. The estimation and determination of the various forms of diplopia are clearly explained; a separate chapter is devoted to the etiology, prognosis and treatment of ocular paralysis. The various forms of ophthalmoplegia externa, interna, and totalis, are reviewed, the author recognizing Gowers' opinion regarding the degenerative and atrophic changes of the nuclei as the pathological disturbances in the chronic variety, as well as the frequency of syphilis as an etiological element in these degenerative disorders. The chief causes of the internal variety are shown to originate from cerebral lesions, general paralysis of the insane, lesions of the base of the brain, and those involving the nucleus, thrombosis of the cavernous sinus, tabes dorsalis resulting in third nerve paralysis, orbital disease pressing on the ciliary nerves, increased intra-ocular pressure due to intra-ocular growths and glaucoma, blows on the eyeball, diphtheritic and ptomaine poisoning, apoplectic coma, syphilis, and mydriatics used internally and locally.

Paralytic myosis is generally met with as one of the symptoms of tabes dorsalis, and is generally due to disease of the cilio-spinal centre. Occasionally it is caused by injury of the sympathetic nerve and by pressure upon that nerve by an aneurysm or by enlarged lymphatic glands. In tabes dorsalis the Argyll-Robertson pupil often follows the myosis as a later manifestation.

Cycloplegia or paralysis of the ciliary body results from paralysis of one or more branches of the third nerve and is most frequently produced by atropine. Other causes given are diphtheria, rheumatic fever, diabetes, syphilis and reflex disturbances. Mandonnet includes parotitis

and influenza. The careful use of eserine and the use of electricity with the positive pole at the base of the occiput and the negative pole over the closed lid, employing a current of from two to five milliampères, is recommended. The author recommends careful attention to the general health, and the usual list of constitutional remedies is endorsed. The prognosis of post diphtheritic cases is most encouraging.

Nystagmus is claimed to have nothing to do with paralysis; it generally occurs in the horizontal direction, but it may be rotary, vertical, or follow the direction of a single muscle. It is as a rule permanent, but it may be periodic and is increased at near distance or after excitement. It may be complicated by turning the head in an opposite direction. The two types noted are the congenital and the acquired; in the former one frequently finds degenerative changes in the optic nerve, opacities in the media, patches of choroiditis and albinism. Squint may complicate the condition due to the existence of corneal opacities and congenital cataracts. Congenital syphilis and disseminated sclerosis, as well as Friedrich's ataxy are frequent causes. The acquired form is most frequently due to certain occupations; miners and others working in a strained, unnatural position, are peculiarly susceptible. The cause, according to Baër and Snell, is due to fatigue of the muscles and exhaustion of their innervation. Rest and abstinence from work is the best treatment for acquired nystagmus, while the congenital form, in the author's opinion, cannot be cured.

The disturbances of muscular balance, heterotropea and heterophorea, conclude this admirable little work; their examination, the estimation of complicated cases, and their treatment is a summary of the work of several American writers, notably Stevens. The author includes, in an appendix, instructions on the use of the diploscope; he also adds a complete bibliography. The book is well printed and a number of original drawings and diagrams add to the value of this instructive contribution to ophthalmic literature. F. T. T.

Pulmonary Tuberculosis and all its Complications. By Sherman G. Bonney, M.D., Professor of Medicine, Denver, and Gross College of Medicine, Denver. Octavo of 778 pages, with 189 original illustrations, including 20 in colours and 60 X-ray photographs. Philadelphia and London: W. B. Saunders & Company, 1908 Canadian Agents: J. A. Carveth & Company, Limited, Toronto.

In his preface the author states, that "this book is not designed for the benefit of skilled specialists in the treatment of pulmonary affections,

but for the use of general practitioners, whose opportunities for clinical study may have been somewhat limited." He desires that "the book should be devoted entirely to the clinical aspects of pulmonary tuberculosis, and an effort has therefore been made to emphasize practical considerations." A general review of the work convinces one that the purpose of the author has been accomplished. While his discussions of signs and symptoms are often found rather discursive, yet they are very helpful, and calculated to instruct those who give attention to them.

The book is divided into six parts. That part devoted to prophylaxis, general treatment and specific treatment, comprises its largest division. Each division is divided into sections, which are again subdivided into chapters, thus enabling the reader to select without difficulty any subject desired. In part six, the author gives some personal observations upon the use of bacterial vaccines—that form of treatment which is coming more and more into vogue. Like many others in this department of therapy, the author's experience is but brief, having extended over a period of less than two years. His conclusions upon this point are, that the administration of bacillar emulsion is of undoubted efficacy in some cases of long standing afebrile pulmonary tuberculosis and that the remedy also possesses possibilities of injurious influence. Further, he believes that despite the uncertainties of active autogenetic vaccines, a justification for their employment is found in the desperate character of the cases to which they are given, and their superiority over the various sera formerly used and that in some cases bacterial vaccines present possibilities of benefit far beyond the limit of former therapeutic efforts.

Under the auscultatory signs of pulmonary tuberculosis, the author discusses at some length adventitious sounds, and states emphatically that "the specific character of râles, with reference to pitch quality, and intensity, do not constitute practical data for the diagnosis of consolidated lung; and the use of the word 'subcrepitant' as descriptive of the fine moist bronchial râle has led to endless confusion. To obviate confusion, the words 'crepitant' and 'subcrepitant,' should be discontinued and moist bronchial râles be considered as *coarse, medium-sized* and *fine,* and râles arising from the air vesicles as *vesicular,* should be described.

Under the treatment of pyopneumothorax as it occurs in the tuberculous patient, we find that the author's experience corresponds pretty well with that observed elsewhere when a permanent opening is made in the pleural cavity.

He says, "from my observations it would almost seem that for these unfortunates, the classic inscription of Dante should be changed to 'Abandon hope all ye who *have entered* here.'"

The book has numerous illustrations of sanatoria, pathological specimens, and x-ray photographs of lung conditions, contains a good index, and is well printed. It is highly recommended to all who are interested in the various phases of the "great white plague."

W. F. H.

SURGERY: ITS PRINCIPLES AND PRACTICE. In five volumes. By 66 eminent surgeons. Edited by W. W. KEEN, M.D., LL.D., HON. F.R.C.S., Eng. and Edin., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume III, Octavo of 1132 pages, with 562 text-illustrations and 10 coloured plates. Philadelphia and London: W. B. Saunders Company, 1908. Per volume: Cloth, $7.00 net; Half Morocco, $8.00 net. Canadian agents, J. A. Carveth & Co., Limited, Toronto.

The third volume of Keen's Surgery contains 1093 reading pages, in which are discussed the diseases and injuries of the head, neck, thorax, œsophagus, abdominal wall, peritoneum, stomach, liver, spleen and pancreas. There is so much material that one cannot but be impressed in some places with the evident effort at condensation. Under such conditions, and in spite of the author's best will, things are apt to take on an enumerative look, and that is unseemly in a work which purports to be a "system." Having said which one has said practically all that is less than clear eulogy.

The first chapter is on the surgery of the head by Harvey Cushing, of Baltimore. In its completeness, its originality, its extensive bibliography and its evidence of wide personal experience in a field which has hitherto been a somewhat restricted one, it is probably the best chapter in the book. Dr. Cushing's name is so well known in this specialty and the article itself is so full of sound work that it is practically impossible to mention details. Still, one should refer in particular to his treatment of hydrocephalus, of internal hæmorrhage in the new born and of cerebral apoplexy. With regard to the last his stand is still definitely conservative from the surgical point of view. He is very far from saying that all cerebral hæmorrhages should be operated on, in fact, when one considers that he refers to only four cases as yet done by himself, it is clear that in this respect he is wisely holding back. There is certainly grave danger in the idea getting abroad that every surgeon has the right to

operate upon such cases or that the indications for operations are frequently present. The chapters on concussion and compression are, as might be expected from his personal work, clear and up to date. They are possibly from one point of view a little short, still in comparison with text-books hitherto published in English, these very important subjects receive their proper attention.

The surgery of the neck is written by Dr. Andrews, of Chicago. It is on the whole satisfactory, occasionally marred by typographical and grammatical errors. The section on injuries of the thoracic duct is especially good, but the complex of diseases to which Hodgkin's disease and lymphosarcoma belong, receives but one page, which is really insufficient.

Diseases of the thyroid gland are very properly written by Albert Kocher, of Berne, and as one might expect from this school, the subject is handled in an extremely able fashion and presents our knowledge of the subject in all its rarest aspects.

Dr. Brewer, of New York, writes upon the surgery of the larynx and trachea, and also of the thorax. Both of these chapters are very creditable. In describing Fowler's decortication of the lung, one notes that he does not refer to Ransehoff's modification consisting in deep scarification by grid-iron incisions, a modification which deserves note. Sauerbruch's work on intrathoracic pressure receives good and sufficient description. Dr. Finney, of Baltimore, describes the surgery of the breast, and the article, as one might expect from the clinic of Halsted, is very good. His water colour illustration of cancer seems rather poor and he describes only one operation for cancer of the breast, that of Halsted, which he uniformly uses.

The surgery of the mouth, teeth and jaws, is by Edmund Owen, of London, the well known authority on the surgical diseases of children. In cleft palate he is in favour of the very early operation by the method of Brophy. The operation for epithelioma of the lip is insufficiently described, and Crile's recent work in the matter of block dissection of cancer in this region is not mentioned. The surgery of the tongue is by J. C. DaCosta, of Philadelphia. Munroe, of Boston, writes on the technique of abdominal surgery, the surgery of the abdominal wall and of the peritoneum and retroperitoneal space. These are sound, conservative and thoughtful articles. The discussion on peritonitis is up to date, and he favours the so-called Murphy treatment.

The œsophagus is undertaken by Gottstein, of Breslau, whose experience in the clinic of the late von Mikulicz was very large in this line and

needless to say it is well done and characterized by Teutonic thoroughness.

The surgery of the stomach is written by Mayo Robson, that of the liver, the gall bladder and the biliary ducts by the two Mayos. The surgery of the pancreas and of the spleen is by Moynihan, of Leeds. These names are sufficient of themselves and one can only say that in so far as a texe-book with its limited space can set forth such subjects they are set forth satisfactorily. E. A.

The American Practice of Surgery. By Bryant and Buck. Vol. IV. William Wood and Company, New York.

The fourth volume of this, the largest system of surgery as yet published in English, maintains the high reputation established by its predecessors. The final chapter of the section on Diseases and Injuries of Joints (begun in Vol. III), deals with dislocations and occupies slightly over 100 pages. It is by Rexford, of San Francisco, who treats the subject in an able and scholarly fashion, with a broad view, both of European and of American literature. Particularly noteworthy are the numerous excellent skiagrams from the material of the Lane Hospital in San Francisco. The author's wide experience is much in evidence, and the article gains thereby. The succeeding 620 pages are devoted to operative surgery in its general aspects. De Nancrede, of Ann Arbor, writes upon "the influences and conditions which should be taken into account before one decides to operate," and under this heading discusses such matters as anæsthesia, environment, medico-legal questions, and the general bodily condition of the patient. G. B. Johnston, of Richmond, takes up "the preparations for an operation, "the operation itself," and "the after care." These are all well handled, and it is gratifying to find such general questions discussed in a surgical textbook with the proper amount of useful detail. The succeeding chapter on General Anæsthesia by Allen and Garland, of Boston, is admirable. It presents the latest views, including a discussion on rectal anæsthesia. To the latter the authors are perhaps unduly unfavourable, in view of the excellent results obtained at the Roosevelt Hospital in New York, with improved apparatus. Possibly the paragraphs devoted to the proprietary anæsthetic, somnoform, might have been omitted in favour of a description of, say, the Vernon-Harcourt apparatus for giving chloroform, which is winning commendation in England, and which is here not mentioned. The chapter on local anæsthesia is by Mitchell, of Washington. It presents chiefly the well known views of Braun, but is amplified by the large personal experience of the author. This method is deserving of much wider application, both by practitioner and surgeon,

than it enjoys, and those who wish to use it will find here the necessary directions set down with satisfying detail. The question of spinal anæsthesia on the other hand receives hardly sufficient discussion, especially as regards its indications. contra-indications and dangers.

William and J. S. Rodman, of Philadelphia, write the chapter on amputations and disarticulations. It is well written and most complete. One might also say that too much space, if that were possible, is given to minute details of surgical anatomy and of operative procedure, and too little to principles, to the indications for such operations, and to their results. Such old illustrations too, as those depicting the transfixion method are hardly necessary. Criticism, however, must not be carping, and one must say frankly that the article as a whole is a very creditable one. The excision of bones and joints is discussed by Whitacre, of Cincinnati. The essentials of Murphy's work upon the preservation of joint movement in excised joints, by the interposition of flaps of fascia and fat, are reproduced; but no reference is made to the considerable amount of work done previously along this line by European surgeons. Then follow chapters on the ligation of vessels in their continuity by John M. Keyes, of New York, and on Minor Surgery by R. S. Fowler, of Brooklyn. Both are good, particularly the latter. Plastic surgery is discussed by Stone, of Boston. It is a difficult subject and is handled satisfactorily.

The last 250 pages of this 980 page book are devoted to orthopedic surgery. Painter, of Boston, writes the chapters on Congenital dislocations and Anterior poliomyelitis, and Royal Whitman, of New York, that on Deformities of the lower extremities, including the varus and valgus deformities of the hip, knee and ankle. The names of these authorities are sufficient guarantee of the excellence of the articles. Torticollis is given a very able and thorough discussion by George D. Stewart, of New York. This is one of the best chapters in the volume. The concluding article is that upon tuberculous disease of the spine and is by Clarence L. Starr, of Toronto, the only Canadian representative in this volume of the system. The author's work is decidedly well done and shows the evidence of thorough study of the abundant hospital material in the surgical diseases of children for which Toronto is so well known.

E. A.

A Manual of Clinical Diagnosis, by James Todd, Ph.B.,M. D. W. B. Saunders Co. Philadelphia, 1908, pp. 319.

The author states that this book aims to present a clear and concise statement of the more important laboratory methods which have clinical

value. In this object the book certainly succeeds. The usual laboratory methods adopted in the examination of sputum, urine, stomach contents, blood, etc., are clearly described, and many of the procedures are illustrated by excellent plates. The book is of convenient size and well printed, and may be recommended as a safe guide in clinical investigation.

THE READY REFERENCE HAND-BOOK ON DISEASES OF THE SKIN. By GEORGE THOMAS JACKSON, Professor of Dermatology, College of Physicians and Surgeons, New York, Consulting Dermatologist to the Presbyterian Hospital of New York, and to the New York Infirmary for Women and Children; Member of the American Dermatological Association, and of the New York Dermatological Society. With 99 illustrations and 4 plates. Sixth Edition, thoroughly revised. Publishers Lea and Febiger, New York and Philadelphia. 1908.

In this, the 6th edition of Dr. Jackson's work, the author has given us a volume which, at least to the general practitioner and the student, should prove of the greatest value. Though not pretending to cover the field of dermatology as fully as many of the larger works, he has succeeded in combining within the comparatively small space, all that is most important from the clinical, with all that is most practical from a therapeutic standpoint. Unlike most publications of this kind, no scheme of classification has been followed, the subjects being arranged alphabetically; this fact, together with a good index, has helped to make the book what it claims to be—a Ready Reference Hand-Book. The illustrations, which are for the most part from photographs, are good.

P. B.

NEUROLOGICAL AND MENTAL DIAGNOSIS: a manual of methods, by L. PIERCE CLARK, M.D., and A. ROSS DIEFENDORF, M.D., published by the Macmillan Co., of Canada, Ltd., Toronto. Price, $1.25.

This book is published in a neat form, printed on good paper, and the type large and clear. The illustrations are excellent and very well produced. One might suggest that in a bound book, meant for practical purposes, uncut pages are out of place is this age of utilitarianism.

The first part of the book, devoted to examination of the nervous system, is written by Dr. Clarke. The usual method of examination is followed and, except for the examination of aphasia, is taken up thoroughly. One feels, however, considering the title of the book, and the fact that it is evidently meant for students, that great value would have been added had the author explained the significance of patho-

logical findings in the examination. Take a simple example for instance, we should be told that the presence of the extensor plantar response (Babinski's sign) shows a lesion somewhere in the course of the pyramidal tract and so on.

The second part by Diefendorf is devoted to the examination of the mental condition of patients for the presence of hallucinations and illusions, clouding of consciousness, disturbances of attention, memory, orientation, etc., etc. Some of the commoner forms of insanity are illustrated by specimen cases so detailed as to give an idea of the important mental symptoms. C. L. R.

Hay-Fever, Hay-Asthma: Causes, Diagnosis, and Treatment. By William Lloyd. Henry Glaisher, London. W. T. Keener and Co., Chicago, 1908.

This, the second edition of a book of one hundred pages, is an able treatise on hay-fever. One wonders that a booklet of such size can be put on the market without evidence of a great deal of padding. The subject is very well handled and makes good reading. The historical review illustrates how the disease has obtained recognition since 1819, when it was first described by Bostock. The author claims that true hay-fever is dependent upon three factors: 1st, hypersensitive areas in the nasal mucous membrane; 2nd, a diseased, or at least an irritable condition of certain nerve centres, and, 3rd, the presence of pollen. The author points out that true hay-fever is to be differentiated from the nervous coryzas brought on by bright sunlight and other irritants. The pathology of the disease is dealt with as far as our present knowledge admits.

The author has given special attention to the treatment which is very clear and concise, ruling out a host of agents which are of doubtful value. We can recommend the volume to those wishing to know the newer points in the way of treatment.

An Aid to Materia Medica. By Robert H. M. Dawbarn, M.D., New York. Fourth edition, revised and enlarged by Eden V. Delphey, M.D. The Macmillan Company, Ltd., New York and Toronto.

This little work should be of value to the student as a memory aid and also to the practitioner as a ready reference. It gives in alphabetical order a list of pharmacopœal drugs with a short description of each, its derivation and doses in both systems. In this country the use of the metric system is gaining ground very slowly. It is therefore necessary that medical students should learn the doses in this system of the drugs most in use. The latter half of the work is taken up with a list of the

newer unofficial drugs and remedial agents. The fact that this last occupies quite as much space as the list of official drugs, shows with what rapidity these drugs are being placed on the market. The book, as a whole, is accurate and concise and no doubt has a place in the rapidly increasing list of students "aids."

A Text-book of Physiological Chemistry, by Charles E. Simon, B.A., M.D. Lea and Febiger, Philadelphia and New York.

A third edition of this valuable text-book has appeared. The first appeared in 1901, and became so popular that a second edition came out in 1904. Its very general introduction as a text-book in the medical schools of America since that date has induced the author and publishers to bring out this third edition. The application of chemical methods to the study of the problem of biology and physiology has of late years come into great prominence. Hence those practitioners and teachers who desire to read intelligently the recent progress in pathology, pharmacology and physiology, require just such a book as that before us for constant reference. It is, indeed, designed in form and subject matter to be not only a text-book for students, but especially a work of reference for the practitioner. The treatment of the subject is orderly and clear. All transformations, an exact knowledge of which has been worked out, are represented by equations and the constitutional formulæ of the ultimate products of the hydrolysis of proteids, as established by Emil Fischer and his school, are clearly and correctly stated. Hence, the book will be one that will appeal to the chemist as well as to the physiologist, the student and the practitioner. Particularly clear and scientific is the portion of the work dealing with the cleavage products of the nucleo-proteids and nucleinic acid. Their chemical relation to the purin and pyrimidin bodies, and these in turn to nitrogen metabolism is most satisfying. The book has an excellent index, and although not intended to be a laboratory guide, contains in an appendix a series of forty-eight laboratory exercises which are evidently the work of an experienced teacher. R. F. R.

Manual of Psychiatry, by J. Rogues de Fursac, M.D. Authorized translation from the French, by A. J. Rosanoff, M.D. Second American from the second French edition. Revised and enlarged. Wiley and Sons, New York, 1908. $2.50.

In this the second edition of this book, the entire text has been thoroughly revised, and all the author's additions in the second French edition have been introduced. The translator has made some interesting

additions to the original, such as Professor Adolf Meyer's theory of dementia precox and others, all of which he has judiciously placed within brackets. The author follows the classification of Kraepelin, which he very properly maintains has considerable advantages to the practical alienist over the older classifications, although it is not yet by any means final. By a careful examination of the history and of the physical and mental status, the alienist is now able in the majority of instances to assign his case to one or another of the great groups and thus to determine the prognosis with a greater degree of certainty and accuracy than was possible formerly. This is the result not merely of the changes in nomenclature, but of an essential departure in the methods of taking the mental status and in the interpretation of the manifestions of the diseased mind.

The book consists of some 400 pages and is divided into two parts: the first, on general psychiatry, is useful for the beginner especially, who will find the general symptomatology and definitions of the nomenclature necessary before undertaking the second part on special psychiatry. The plan for history taking and examination strikes one as eminently impractical and involved, but as the author remarks, it can and should be modified more or less extensively as may be required.

The descriptions of the various types of mental diseases are concise and in most cases clear and good. The part on treatment might be enlarged upon with considerable advantage, especially in the chapter devoted to hysteria, and also in those psychoses which are generally considered curable. C. K. R.

PATHOGENIC MICRO-ORGANISMS, INCLUDING BACTERIA AND PROTOZOA. A practical Manual for Students, Physicians and Health Officers. By WILLIAM H. PARK, M.D., Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, New York. New (third) edition, thoroughly revised and much enlarged. Octavo, 648 pages, with 176 illustrations and 5 full-page plates. Cloth, $3.75 net. Lea and Febiger, Philadelphia and New York, 1908.

This is a delightful little book that we have read with much pleasure. The author has devoted the first two hundred pages to a general discussion of bacteriology, and in this part is found much information regarding the biological properties of bacteria, which is not met with in the English books. All the facts are so clearly described that one's interest is maintained throughout the study. For the practitioner, this book must serve the most useful purpose in giving the most practical

side of bacteriology,—the method to overcome infections. Sterilization of instruments, milk, water and so on is fully taken up. The value of the various disinfectants and their methods of use is very well illustrated. What strikes one throughout the work is that the practical side of the subject is so well dealt with, and that the unnecessary descriptions are left out. The organisms deserving particular attention are described in the second part, and are given such attention as they, as disease producers, merit. The subject of immunity is given clearly and concisely.

Dr. Park also recognizes the importance of animal parasites as disease producers, and, although this importance varies in different climes, he has given sufficient recognition to those pathogenic to man, to allow us a very good insight into the subject of protozoology.

As Dr. Park's book therefore covers all the disease-bearing organisms so well, we can recommend it most highly to both the student and the practitioner. O. K.

Diseases of the Skin and the Eruptive Fevers, By Jay Frank Schamberg, M.D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine. Octavo of 534 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $3.00 net. Canadian agents, J. A. Carveth and Co., Ltd., Toronto.

This is a well written book and covers the subject in as thorough a manner as can be accomplished in a work of its size. We note a few departures from the methods of classification usually adopted by dermatologists. Thus, the diseases due to animal and vegetable parasites are included under the head of "exudationes," a change for which the author offers no explanation, and one which we think tends rather to complicate than simplify what is always a difficult point to the student of dermatology, namely, the basis on which skin diseases are classified. So much has this been the case that many of the later works have ignored classification altogether and arranged the diseases in alphabetical order.

As the title indicates, the author has thought it wise to include in a book, descriptive of skin diseases, a more complete account of the exanthemata than is usual in such treatises. This is of decided advantage to the dermatologist in a question of differential diagnosis from the non-infective diseases of the skin, but, as the cutaneous manifestations are given an undeserved prominence as compared with the other symptoms in such diseases as scarlet fever, measles, and small-pox, it is hardly a safe text-book on these subjects for the practitioner.

A section on actinotherapy and radiotherapy is of interest and rates

the value of these somewhat overvalued therapeutic measures in a very just manner. The volume is well illustrated with numerous cuts in the text, and will furnish a useful little manual for students who do not wish to burden themselves with a more advanced book on the subject.

REPORT ON THE PREVENTION OF MALARIA IN MAURITIUS, By MAJOR RONALD ROSS. Waterlow and Sons. London, 1908.

This report was compiled at the request of the British Government, after Major Ross had studied the conditions and factors of the disease in Mauritius in 1907. Mauritius appears to have been free from malaria until 1835, fifteen years after the British gained possession of the island. In this year great numbers of coolies were brought from India, and sporadic cases developed through the country. The disease, however, was quiescent until 1865, when it broke out in great proportions. "In two years the island of pastoral romance fell to the condition of West Africa or the Himalayan Terai."

Major Ross gives a concise historical review of malaria, and discusses the factors associated with the spread and transmission of the disease. The appearance of malaria in a locality depends upon the introduction of mosquitos and of infected persons. These were both brought into Mauritius, though the exact mode and time of the transportation of the mosquito is uncertain.

Major Ross gives detailed statistics of the disease in Mauritius,—one of the striking figures being that one third of the children under sixteen, on this island, have malaria. He also presents the measures which must be taken to gain control of the epidemics. The report is very complete and instructive to all malaria-ridden localities, and illustrates the effective work which is carried on by the Liverpool School of Tropical Medicine. O. K.

Medical News.

ONTARIO MEDICAL ASSOCIATION.

The annual meeting of the Ontario Medical Association will be held in Toronto June 1st, 2nd, and 3rd, 1909. The following are the officers:

President—Dr. H. J. Hamilton, Toronto.

Vice-Presidents—Dr. R. R. Wallace, Hamilton; A. Dalton Smith, Mitchell; Dr. A. M. McFaul, Collingwood; Dr. George Field, Cobourg.

General Secretary—Dr. E. Stanley, Ryerson, 243 College Street, Toronto.

Assistant Secretaries—Dr. Samuel Johnston, 169 Carlton Street, Toronto; Dr. J. E. Davey, 145 King Street, Hamilton.

Treasurer—Dr. J. Heurner Mullin, 201 James Street South, Hamilton.

Chairman Committee on Papers and Business—Dr. Herbert A. Bruce, 64 Bloor Street East, Toronto.

Chairman Committee on Arrangements—Dr. Bruce L. Riordon, 73 Simcoe Street, Toronto.

The following is a list of the sections with their officers: Surgery—President, Dr. G. A. Bingham; Secretary, Dr. A. B. Wright. Medicine—President, Dr. W. H. B. Aikens; Secretary, Dr. F. A. Clarkson. Obstetrics and Diseases of Children—President, Dr. Adam Wright; Secretary, Dr. J. A. Kinnear. Eye, Ear, Throat and Nose—President, Dr. D. J. G. Wishart; Secretary, Dr. C. Campbell. Preventive Medicine—President, Dr. C. Sheard; Secretary, Dr. C. J. Hodgetts.

Papers are announced as follows:—

Dr. John B. Deaver, Philadelphia; Dr. E. F. Cushing, Cleveland, on "Copious Water Drinking in Typhoid Fever;" Dr. W. P. Manton, Detroit; Dr. Little, Montreal; Dr. C. H. Vrooman, Winnipeg; Dr. A. Baines, Toronto; Dr. McFaul, Collingwood; Dr. Slemons, New York; Dr. McDonald, New York; Dr. J. M. Elder, Montreal; Dr. J. M. Rogers, Ingersoll; Dr. Hadley Williams, London; Dr. H. B. Anderson, Dr. W. McKeown, and Dr. C. B. Shuttleworth, Toronto; Dr. E. Ryan, Kingston.

CANADIAN MEDICAL ASSOCIATION.

The next meeting of the Canadian Medical Association will be held at Winnipeg, August 23rd, 24th and 25th, 1909. The following officers and committees have been appointed: Dr. Blanchard, President. Committee on Transportation—Drs. Blanchard, Vrooman, Mackenzie, Moorhead, Rogers, Leney. Ophthalmology and Otology—Drs. Prowse, Turnbull, Smith, Good, Raymond, Brown, Williams. Entertainment—Drs. Rogers, Field, Devine, Milroy, Young, Fletcher. Finance—Drs. Patterson, Simpson, Pope, Brandson, Popham, Moody. Pathology—Drs. Bell, Pierce, Vrooman, Webster, Leeming. Credentials—Drs. S. Campbell, Kenny, Mitchell. Exhibit and Accommodation Committee—Drs. Munroe, Coulter, Davidson, W. G. Campbell, A. M. Campbell, Hiebert, Dubuc, Burridge. Medicine—Drs. J. R. Jones, Hunter, MacDonnell, Rorke, Bjornson, E. W. Montgomery, Chestnut, McCalman.

Executive—Drs. Chown, Smith, Blanchard, Milroy, Devine, McLean, J. R. Jones, Halpenny, Vincent, Hughes. Surgery—Drs. Nichols, McLean, Blanchard, Todd, Lehmann, Galloway, D. S. Mackay, J. McKenty. Advertising and Publication—Drs. Hugh Mackay, Hughes, D. Stewart, D. Macdonald.

Dr. C. D. Parfitt, who was for six years physician-in-charge of the Muskoka Free Hospital for Consumptives at Gravenhurst, Ont., and has been for the last seven months resident consultant to that institution and the Muskoka Cottage Sanatorium, has resigned his position. Dr. Parfitt will remain in Gravenhurst and continue practice in pulmonary and laryngeal tuberculosis.

Dr. Francis P. L. Cantlie, of Montreal, died on the 10th November, in his thirtieth year. He graduated from McGill University in 1907, and was house-physician in the Royal Victoria Hospital during the next year. During the last two years, Dr. Cantlie was almost completely an invalid, but his death, nevertheless, was unexpected.

Dr. Alfred Caulfield has been appointed resident pathologist to the Muskoka Hospital of the National Sanatorium Association, and Dr. W. S. Lemon was added to the resident staff. Dr. W. B. Kendall continues as medical superintendent.

Dr. C. K. Clarke, Superintendent of the Asylum for the Insane, Toronto, has been appointed Dean of the Faculty of Medicine of Toronto University, in succession to Dr. R. A. Reeve, who has resigned.

Retrospect of Current Literature.

OPHTHALMOLOGY.

UNDER THE CHARGE OF DRS. STIRLING, BYERS, MATHEWSON, MCKEE, TOOKE.

De Schweinitz, Geo. E. "Autointoxication: A Further Contribution to the Possible Relationship of Autointoxication to Certain Diseases of the Cornea and Uveal Tract."

At a meeting of the Section on Ophthalmology of the American Medical Association in Boston, 1906, de Schweinitz presented a paper on "Autointoxication in Relation to the Eye," and concluded this com-

munication with the following summary: "Although we do not know the entity of a single autointoxication, except the acidosis of diabetic coma, and although we know that no known autointoxication is to be attributed to any known end product of any known metabolism, to quote Alonzo Taylor, we do know, from clinical analogy, at least, that autointoxications exist, even if their true nature is as yet a secret. We do know, too, that after food is swallowed, and before the end products of assimilation are eliminated, there may be processes arising under abnormal conditions which yield poisonous products foreign to normal metabolism, the reabsorption of which may be followed by definite symptoms. We have reason to believe, in the absence of other causes, that under these conditions ocular troubles may also arise largely in the corneoscleral and uveal tracts, and probably, in so far as the nervous apparatus is concerned, in manifestations to which we apply the term acute or chronic retrobulbar neuritis. We do not know whether these toxins, whatever they may be, actually are the only and sole cause of these conditions, but such examinations as have been made by Elschnig, Kraus, Groyer, Edsall and myself, at least indicate that, to use Elschnig's term, they may be considered accessory causes. As Edsall and I have said, they may be able to play a certain part in the production of the symptoms, and at times are probably the direct cause of their continuance, even when other more commonly accepted etiologic factors have ceased to be active."

As the subject appeared to have excited some interest among certain of his opthalmic confreres, de Schweinitz continued his investigations, and presented at the last meeting of the A. M. A., Chicago, 1908, reports of a series of cases in which there seemed to be a certain justification for presenting them as worthy of consideration from the standpoint of autointoxication, because the ocular conditions of the cases reported suggested a toxic stage, because the constitutional symptoms in some of them were analogous to symptoms of chronic infections and gastro-intestinal diseases, and because the physical examinations of the patients were, in a measure, indicative of similar etiologic factors.

The general and laboratory examinations in the study of the patients were carried out by Dr. Charles A. Fife, who drew up the following *résumé* of those products detected by urinary analysis, and examination of the fæces and gastric contents, which permit one to indulge in the belief that autointoxication and its effects are worthy of consideration. As this epitome is of the widest interest to the profession, no apology is needed for reproducing it here in full.

1. *Examination of Urine.*—The urine is usually scanty, of dark colour, and albumin, cylindroids and casts may be detected. The presence of acetone, diacetic acid and oxybutyric acid suggests acidosis and derangement in fat metabolism. Indol and skatol, which are the result of bacterial action on an end product of tryptic digestion, unite chiefly with sulphuric acid, forming part of the so-called conjugated sulphates or ethereal sulphates. Phenol and cresol are formed from tyrosin by bacteria and are chiefly eliminated, as are indol and skatol, as conjugated sulphates. These aromatic bodies, that is, indol, skatol, phenol and cresol, but more especially their conjugated forms, are valuable indicators in the urine of protein decomposition products, that is, of intestinal putrefaction; but when considered alone they are not pathognomonic of autointoxication, even though tissue putrefaction is excluded, because the excretion of aromatic bodies may be much in excess of the average normal, and yet no other evidence of disease can be detected. This is especially true of any single type, such as indican.

Urobilin is probably formed from bile pigments in the intestines by the action of bacteria, and hence has been regarded as something of an index to bacterial activity in the intestinal tract. This, however, has not been proved. The volatile fatty acids (formic, acetic, butyric and propionic) have also been regarded, to a certain extent, as indications of carbohydrate fermentation in the intestinal tract. In this respect, however, the volatile fatty acids are uncertain guides, because under some conditions they are increased without the accompanying carbohydrate fermentation. Therefore, the degree of fatty acidity is not of value when considered alone, but in relation to the diet of the patient, to the presence or absence of acetone, aromatic bodies, urobilin, ammonia, nitrogen and conjugated sulphates, it is, at least, of interest and probably of value. The presence of cystin, leucin, tyrosin and hydrogen-sulphid is of no importance unless associated with other evidences of autointoxication.

The total nitrogen, urea, uric acid, ammonia nitrogen and albumin, when considered in connection with the character and amount of diet, furnish important data on the condition of nitrogen metabolism. The average output of these substances in twenty-four hours, on an average diet, of a healthy adult, is approximately: urea, 20.0 gm.; uric acid, 0.2 gm.; ammonia nitrogen, 0.6 gm.; total nitrogen, 14.0 gm.

Inasmuch as ammonia nitrogen probably bears a reciprocal relation to urea, except where there is an increased formation of acids in the system, the increase of ammonia is an index, though not a perfectly trustworthy one, of acidosis to be confirmed by detection of excess

acetone, diacetic acid, and oxybutyric acid. The sulphates are derived principally from the catabolism of protein material in the body. The largest amount unites with inorganic elements, forming the so-called preformed sulphates, approximately 1.5 to 2.5 gm., being the daily output of a normal adult on an average diet. The conjugated sulphates are the sulphates combined with the aromatic protein decomposition products, averaging from 0.1 to 0.25 gm. per diem, the normal ratio to preformed sulphates being 1 to 10. An increase in amount of the conjugated sulphates is our most reliable evidence of intestinal putrefaction.

2. *Examination of Feces.*—Naturally, a diagnosis of intestinal autointoxication cannot be made in the absence of a thorough examination of the feces, and certainly not in the absence of inspection of the dejecta, in order to note their colour, odour, reaction, consistency, state of digestion and the presence or absence of the signs of fermentation, etc.

3. *Examination of Gastric Contents.*—This also is important, in order to ascertain the state of digestion of the test meal, the evidence of retention and decomposition, the presence of acid products of fermentation, the total gastric acidity and the amount of free hydrochloric acid, the presence of sarcinæ, yeast, etc.

The cases studied by de Scheweinitz were six in number, and included relapsing sclero-keratitis, bilateral parenchymatous keratitis, disseminated exudative chorioiditis, relapsing uveitis, and central exudative chorioiditis in association with peripheral retino-chorioiditis. With the data furnished by exhaustive studies along the lines indicated, dietetic regimina were instituted with brilliant results in three cases, and a striking if not brilliant result in another patient.

De Schweinitz concluded his important paper with the following paragraphs interrogatively stated:

1. Is there any known disease of any of the histologic systems of the eye which of itself would justify the inference that an intestinal autointoxication is present? Certainly not, because, in the first place, we have no definitely certain knowledge of any specific intoxication depending upon the non-elimination of metabolic products, and, in the second place, the clinical pictures of ocular diseases, for example, of the uveal tract, may be identical, although their etiology may be widely different.

2. Have laboratory examinations isolated any definite toxin to the influence of which could be attributed any of the diseases of the eye at present under consideration? They have not. Hence, if such a criterion of the diagnosis of an autointoxication is necessary, as I have already stated, none of the cases recorded could be regarded as expressions of metabolic disorders.

3. Is it worth while, negative answers having been given to questions 1 and 2, to pursue the line of investigation in the cases under consideration? It would certainly seem so. At least we find or do not find the evidences of intestinal putrefaction and become acquainted with the patient's nitrogen metabolism. If the metabolism is abnormal it may be restored to the normal by a dietetic regimen, which could not be worked out in the absence of the data furnished by such examinations.

W. G. M. B.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The second regular meeting of the Society was held Friday evening, October 15th, 1908, Dr. W. Grant Stewart, Vice-President, in the Chair

Before the regular business of the meeting was proceeded with, Dr. G. P. Girdwood brought forward the question of the housing of the consumptive and their care in this city. He cited the case of a young man but six weeks out from the old country, in the last stages of consumption. The people where he boarded demanded his removal, but not one institution could be found in the city or outside where he could be placed. Eventually after much litigation he was deported back to his home. Other cases in the same circumstances are constantly being sent to gaol. Dr. Girdwood was of the opinion that the Government should take up this matter, and that as in England each municipality or county be compelled to provide for such cases. Dr. Girdwood therefore moved that this Society appoint a committee to enquire into the matter with a view to approaching the government and to secure legal advice if necessary on the procedure necessary. This was seconded by Dr. Lauterman.

W. Grant Stewart, M.D.—I think this is a very important question and well worth the attention of this Society. I may say that at the last meeting of the Tuberculosis League two days ago, a letter was read from Lieut. Col. Burland, in which he agreed to give $50,000 for the establishment of a dispensary with probably 12 or 20 beds for the care of incurable cases, on condition that another fifty thousand be subscribed by the community within three months, and it is hoped that something will be accomplished in the not very distant future.

M. Lauterman, M.D.—I was always under the impression that the Home for Incurables at Côte des Neiges would accept such cases as Dr. Girdwood has described; of course their capacity is limited. It has often occurred to me that the law in this connection is not as defective

as is its application. I do not see any reason why tuberculosis should be regarded in any different light from scarlet fever or diptheria; it may be that the seriousness of these diseases appeals more to the public because they are more familiar with them; the facts are, however, much the same, and tuberculosis is fully as great a menace to the community as is scarlet fever or diptheria.

As I understand the law the City is supposed to look after all infectious and contagious diseases, and I think that if the matter were pressed hard enough, they would realize their duty. Anything that this Society can do in the way of securing just such facilities for these unfortunates as Dr. Girdwood has described, I am sure would be willingly done.

G. P. Girdwood, M.D.—With regard to the Hospital for Incurables at Côte des Neiges I enquired there for my patient and found that they had a waiting list for six months to come. This was practically the same with the Grace Dart Home. In order to be effective, any laws enacted would have to be Federal, so that the county from which the patient came would be held liable for his upkeep.

Dr. H. A. Lafleur.—I would suggest in connection with this motion that anything which this Society would do in this matter should be done in conjunction with the Tuberculosis League, as well as any other Society or Institution interested. At present the Tuberculosis League is supposed to be looking after this matter and they have got so far as having the Government name a Royal Commission.

TWO RECENT CASES OF AN UNCOMMON FORM OF PERIPHERAL PARALYSIS.

D. A. Shirres, M.D.—Read the report of these cases.

A. G. Morphy, M.D.—I should like to ask Dr. Shirres if he was able to assign any cause to the disturbance in the first case.

Dr. Gurd said that this patient had had an indefinite attack of influenza in February, and was in bed then for four or five days, and for the next fortnight was still pretty miserable. After this, though going out and about, noticed that she easily tired. Towards the end of March, from exposure to cold with insufficient clothing, she contracted what appeared to be a second attack of la grippe; there was fever and very severe headache lasting several days and not relieved by fair doses of phenacetin.

ACUTE DILTAATION OF THE STOMACH.

A. G. Nicholls, M.D.—read the paper of the evening.

Geo. E. Armstrong, M.D.—I am sure that we are all indebted to Dr. Nicholls for the carefully prepared paper which he has just read and for the masterly way in which he has put before us the subject of

arterio-mesenteric obstruction. The condition has been only comparatively recently recognized by surgeons. I reported briefly a few cases in one of the discussions which took place before this Society last year. I think many surgeons in looking back, will recall conditions bearing close resemblance to arterio-mesenteric obstruction which are most suggestive, and unfortunately most of these cases succumbed. While physicians will probably meet it most frequently in prolonged illnesses like typhoid fever, in which, the patient having been in bed for a long time, the small intestines have gradually dropped down into the pelvis, dragging the mesentery with them, it occurs in surgical practice more commonly after operations, particularly after operations on the abdomen. All the cases in which I have recognized it myself have occurred during convalescence from appendicitis operations. The appearance of the abdomen in each case has appeared after the bowels have been thoroughly moved many times and the patient is supposed to have passed the danger line and to be recovering. At this time vomiting begins and recurs. On inspection the epigastric region is found to be greatly distended and rounded, while the lower abdomen may be quite flat and flaccid. In three of my cases the condition has developed while the patient was being treated for general peritonitis in the Fowler position, and it would seem but natural that this position would rather favour the development of this particular form of obstruction. Stomach lavage alone in these cases is useless; the stomach continues to refill and the vomiting to recur to the end. On the other hand, if the position of the patient is reversed and the Fowler changed to an exaggerated Trendelenburg position, the stomach then immediately is relieved and the recovery goes on smoothly after one or two gastric lavages. I think that the recognition of the pathology of this condition, and the postural treatment which it suggests, should certainly tend to still further improve our results in abdominal surgery.

D. A. Hingston M.D.—One case that came under my notice is, I think, of interest. A girl of fifteen was admitted to the Hotel-Dieu suffering from fæcal fistula following appendix abscess which had been operated on two years before. Laparotomy was performed and the fistula closed. Vomiting after the operation was exceptionally severe and persistent, the child dying 48 hours later. A partial post mortem was performed and it was found that the stomach and duodenum were markedly dilated, the distension ceasing abruptly where the duodenum was crossed by the root of the mesentery. Below that point the intestines were collapsed. The mesenteric glands, especially those nearest

the root, were greatly enlarged and this mass of glands was pressing on the duodenum and causing the obstruction. I mention this case as I do not think Dr. Nicholls spoke of enlarged glands as a possible cause of obstruction of the duodenum.

J. G. Adami, M.D.—I should also like to add my word of praise of Dr. Nicholls for this thorough and scientific study of acute gastric and duodenal dilatation,—a study which I know has engaged Dr. Nicholls for several years. I still remember vividly the first case which he and I came across of this condition, the first of the Royal Victoria Hospital series reported by him this evening. It was so unexpected. Here was a young fellow, whose main condition appeared to be one of acute generalized gonorrhœa, with rapid failure and death. I shall never forget the huge size of the stomach, the equally striking dilatation of the duodenum, and the tense band of the vessels of the radix mesenterii under which the duodenum passed and beyond which the bowels were of normal calibre. The way in which the two ends of the mesenteric vessels sprung apart when I cut it across was very striking. Later we came across the other cases referred to by Dr. Nicholls.

What impressed me in that first case was the accumulation of the small intestines in a balled up mass, lying well in the pelvis. It seemed here very definite that the pull of this mass of the small intestines over the pelvic prominence upon the elongated mesentery was the essential cause of the obstruction, it being remembered that the young fellow was lying upon his back. But certainly this pull will not explain all cases, especially that group of which laparotomy or other operations appear to be a predisposing cause. It is interesting to observe how, during the last year or two pathologists and surgeons in various parts of the world have been calling attention to the ill effects of narcosis in setting up advanced necrotic disturbances in the liver, almost simulating yellow atrophy, along with severe vomiting and other indications of gastric disturbance. Have we here merely to deal with a mechanical alteration in the relationship of parts, due to the narcosis? I hardly think so. The indications are that we deal with a definite toxic condition, which, on the one hand, may show itself more particularly in liver disturbances; on the other, in this profound vomiting and dilatation of the stomach and duodenum. For myself, I am inclined to separate this group of cases from another group in which the causation is purely mechanical.

M. Lauterman M.D.—I had the privilege of working under Professor Rokitansky in Vienna several years later than the case cited by

Dr. Nicholls, and I may say that in his teaching he emphasized three cardinal principles in this connection.

The patient should not be starved before operation; they were permitted nearly all foods until the night before operation, which was usually performed in the early morning, and it was a common thing to let a patient have a cup of broth shortly before the anæsthetic was administered; he usually used Chloroform.

We were also taught that if there was any waiting to be done, it was the operator and not the patient who should do it, so that the patient was not kept under the anesthetic any longer than was absolutely necessary.

Another feature of his work, was the avoidance of all unnecessary manipulation; viscera were not removed from the abdominal cavity for the purpose of demonstration, and unless it was especially indicated every organ in the abdomen was not handled.

The few cases of dilatation that I can recall having seen here, were treated by posturing and high enemata, which always seemed to afford relief.

A. G. Nicholls, M.D.—I should have liked in this paper to have said considerably more on the pathogenesis and diagnosis of the condition, but time would not permit. I simply had to indicate what I thought were the more important features. One point brought up by Dr. Garrow in regard to the origin of the large amount of fluid vomited up or removed by lavage, is explained on the ground of obstruction of the intestine high up. It is supposed that normally there is a large amount of secretion from the stomach, liver and pancreas which is absorbed by the bowel. In cases of duodenal obstruction, this fluid is not absorbed and passes into the stomach, there to collect. Sometimes 8, 9 and 10 or more pints have been removed in these cases. Dr. Hingston's case is, I think, unique where the obstruction was due to enlarged glands about the duodenum, but it is quite easy to see how such could be a cause in this situation.

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